

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.08.96
Test oil : ISO 4113

Part no. : 0 460 414 069
Pump designation : VE4/11F2000R347

Customer-spec. information

Customer : LAND ROVER
Motor : 2,5L DI TCI
Power KW : 83.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 55
Tolerance °C ± : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 116

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1600
Aneroid pressure hPa : 1000
Setting mm : 3.3
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1600
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.4
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1400
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 63.6
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 3.0
Check tolerance cm³/1000S. : 4.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 35.0
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm³/1000 strokes : 12.0
Tolerance cm³/1000 str. ± : 2.0
Shutoff solenoid Volt : 12

Spread
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 4.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2100
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 55.3
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 105.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 5.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.7
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.3
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000

OVERFLOW QUANTITY

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 152.7
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 100.0
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 55.3
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 5.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 7.5
 Check tolerance
 cm³/1000S. + : 7.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 300

LDA/
 HBA stroke mm : 7.0
 Del. quantity
 cm³/1000 strokes : 53.6
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 62.1
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 3.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 41.5
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1800
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 62.0
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.5

Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 63.4
 Tolerance
 cm³/1000 str. + : 2.5
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 63.6
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 2.8
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 107.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.0
Dimension K mm : 3,3
Tolerance mm ± : 0,1
Dimension KF mm : 5,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,25
Tolerance mm ± : 0,15

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.08.96
Test oil : ISO 4113

Part no. : 0 460 414 080
Pump designation : VE4/11F1900R347-1

Customer-spec. information

Customer : LAND ROVER
Motor : 2,5L DI TCI
Power KW : 80.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 55
Tolerance °C + : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 116

Opening pressure
bar : 207
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
Setting mm : 3.3
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.4
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 59.3
Tolerance
cm³/1000 str. + : 0.5
Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 str. + : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

Spread
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2000
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 47.5
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 105.0
 Tolerance
 cm³/1000 str. + : 25.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1850
 Aneroid pressure
 hPa : 1000
 SV travel mm : 4.8
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.1
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.3
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000

OVERFLOW QUANTITY

Rated speed rpm : 1850
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 152.7
 Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 47.5
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 5.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 2200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. † : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 300

LDA/
 HBA stroke mm : 6.5
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. † : 0.5
 Check tolerance
 cm³/1000S. † : 3.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1850
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. † : 2.0
 Check tolerance
 cm³/1000S. † : 3.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 42.5
 Tolerance
 cm³/1000 str. † : 2.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. † : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1400

Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 59.3
 Tolerance
 cm³/1000 str. † : 0.5
 Check tolerance
 cm³/1000S. † : 2.8
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. † : 1.5

IDLE DELIVERY

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. † : 1.5
 Check tolerance
 cm³/1000S. † : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 50.0
 Tolerance
 cm³/1000 str. † : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 150
 Del. quantity
 cm³/1000 strokes : 107.0
 Tolerance
 cm³/1000 str. † : 25.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 6.5

Dimension K mm : 3,3

Tolerance mm ± : 0,1

Dimension KF mm : 5,4

Tolerance mm ± : 0,2

MS1 dimension mm : 1,25

Tolerance mm ± : 0,15

CONTROL LEVER POSITION

SET

Control lever

position YA mm : 42,3..46,3

Control lever

position YB mm : 49,0..60,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.08.96
Test oil : ISO 4113
Part no. : 0 460 426 216
Pump designation : VE6/12F1250R373-7

Customer-spec. information
Customer : CDC
Motor : 6 BTA-590

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,85
Tolerance mm +- : 0,02(0,06)
Outlet : 0

Prestroke

A09

(as of UT) mm : 0,3
Tolerance mm +- : 0,02
Check tolerance mm +- : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure hPa : 1000

Setting mm : 1.5
Tolerance mm +- : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Supply pump pressure bar : 3.5
Tolerance bar +- : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 85.0
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 69.0
Tolerance cm³/1000 str. +- : 0.5
Check tolerance cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 375
Del. quantity cm³/1000 strokes : 11.0
Tolerance cm³/1000 str. +- : 3.0
Spread cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1300
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. ± : 30.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000

SV travel mm : 2.6
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

SV travel mm : 0.8
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

Rated speed rpm : 450
KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.8

Tolerance bar ± : 0.3
Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 2.5
Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s ± : 20.8

Check tolerance
ccm/10s ± : 20.8

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1300
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 6.0

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Rated speed rpm : 1330
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. ± : 20.0

Check tolerance
cm³/1000S. + : 20.0

Rated speed rpm : 700

Aneroid pressure
hPa : 400

Del. quantity
cm³/1000 strokes : 78.0

Tolerance
cm³/1000 str. + : 0.5

Check tolerance
cm³/1000S. + : 4.0

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 78.0

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 3.0

Rated speed rpm : 1050

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 81.5

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 3.5

Rated speed rpm : 500

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 87.0

Tolerance
cm³/1000 str. + : 4.0

Rated speed rpm : 750

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 85.0

Tolerance
cm³/1000 str. + : 0.5

Check tolerance
cm³/1000S. + : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 2.0

Tolerance
cm³/1000 str. + : 2.0

Check tolerance
cm³/1000S. + : 2.0

Rated speed rpm : 125

Del. quantity
cm³/1000 strokes : 2.5

Tolerance
cm³/1000 str. + : 2.5

Check tolerance
cm³/1000S. + : 2.5

START TRANSITION

Rated speed rpm : 450

Del. quantity
cm³/1000 strokes : 68.0

Tolerance
cm³/1000 str. + : 20.0

Rated speed rpm : 250

Del. quantity
cm³/1000 strokes : 110.0

Tolerance
cm³/1000 str. + : 25.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2

Tolerance mm + : 0,2

MS1 dimension mm : 1,5

Tolerance mm + : 0,15

SVS dimension mm : 1,5

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,0..41,0

Control lever
position YB mm : 43,7..48,9

End of test-specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.08.96
Test oil : ISO 4113
Part no. : 3 283 397
Pump designation : VE4/12F1050R389-2A

Customer-spec. information
Customer : CDC
Motor : 4 BT- 390 AUTOM.

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,55
Tolerance mm ± : 0,02(0,06)
Outlet : A

Prestroke

A13

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure hPa : 1000

Setting mm : 3.6
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1100
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 67.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 49.0
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 360

Del. quantity
 cm³/1000 strokes : 17.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 100.0
 Tolerance
 cm³/1000 str. ± : 40.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 SV travel mm : 5.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.1
 Tolerance mm ± : 0.4

Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.6
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.3
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.2
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 62.5
 Tolerance
 ccm/10s ± : 20.8
 Check tolerance
 ccm/10s ± : 20.8
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1120
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 35.0
 Check tolerance
 cm³/1000S. +- : 20.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 366
 Del. quantity
 cm³/1000 strokes : 63.0
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 67.5
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5

Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 420
 Del. quantity
 cm³/1000 strokes : 2.0
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000S. +- : 2.0
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 230
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 str. +- : 20.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 130
 Del. quantity
 cm³/1000 strokes : 100.0
 Tolerance
 cm³/1000 str. +- : 40.0
 Shutoff solenoid
 Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
 Tolerance mm +- : 0,2
 Dimension MS mm : 1,2
 Tolerance mm +- : 0,2
 SVS dimension mm : 2,5

CONTROL LEVER POSITION
SET

Control Lever
position YA mm : 34,8..38,8

Control Lever
position YB mm : 42,3..47,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.09.96
Test oil : ISO 4113

Part no. : 0 460 426 085
Pump designation : VE6/12F1300R241

Customer-spec. information
Customer : PERKINS
Motor : T6 60

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,0
Outlet : C

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000

Setting mm : 2.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 92.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 str. ± : 1.5
Shutoff solenoid
Volt : 24

Check tolerance
cm³/1000s. : 4.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1300
Aneroid pressure
hPa : 1000
SV travel mm : 3.3
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 950
Aneroid pressure
hPa : 1000
SV travel mm : 0.8
Tolerance mm ± : 0.3
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1300
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1300
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 27.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 55.0
 Tolerance cm³/1000 str. ± : 3.0
 Check tolerance cm³/1000s. ± : 6.0
 Shutoff solenoid Volt : 24

Rated speed rpm : 1480
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 16.0
 Check tolerance cm³/1000s. ± : 10.0
 Shutoff solenoid Volt : 24

Rated speed rpm : 1530
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 1.5
 Tolerance cm³/1000 str. ± : 1.5
 Check tolerance cm³/1000s. ± : 1.5
 Shutoff solenoid Volt : 24

Rated speed rpm : 700
 Aneroid pressure hPa : 350

LDA/
 HBA stroke mm : 6.8
 Del. quantity cm³/1000 strokes : 82.5
 Tolerance cm³/1000 str. ± : 0.5
 Check tolerance cm³/1000s. ± : 3.5
 Shutoff solenoid Volt : 24

Rated speed rpm : 1300
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 84.5
 Tolerance cm³/1000 str. ± : 1.5
 Check tolerance cm³/1000s. ± : 3.5

Shutoff solenoid Volt : 24

Rated speed rpm : 700
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 91.0
 Tolerance cm³/1000 str. ± : 1.5
 Check tolerance cm³/1000s. ± : 3.5
 Shutoff solenoid Volt : 24

Rated speed rpm : 500
 Del. quantity cm³/1000 strokes : 70.5
 Tolerance cm³/1000 str. ± : 1.5
 Check tolerance cm³/1000s. ± : 3.5
 Shutoff solenoid Volt : 24

Rated speed rpm : 1000
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 92.5
 Tolerance cm³/1000 str. ± : 0.5
 Check tolerance cm³/1000s. ± : 3.0
 Shutoff solenoid Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1300
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 1.5
 Tolerance cm³/1000 str. ± : 1.5
 Check tolerance cm³/1000s. ± : 1.5
 Shutoff solenoid Volt : 24

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity cm³/1000 strokes : 1.5

Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 5.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 265
Del. quantity
cm3/1000 strokes : 55.0
Tolerance
cm3/1000 str. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 150

A20

Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 str. + : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.8
Dimension KF mm : KOT
Dimension MS mm : 0,95
Tolerance mm + : 0,15
SVS dimension mm : 0,6

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 44,9..53,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.96
Test oil : ISO 4113

Part no. : 0 460 426 177
Pump designation : VE6/12F1050R381-7

Customer-spec. information
Customer : CUMMINS
Motor : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm ± : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.6
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 4.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 73.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.5
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. ± : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
 SV travel mm : 5.4
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 SV travel mm : 1.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
 Supply pump
 pressure bar : 5.2
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Supply pump
 pressure bar : 2.9
 Tolerance bar ± : 0.3

Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1050
 Overflow quantity
 ccm/10s : 75.0
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 55.5
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 16.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1130
 Del. quantity
 cm³/1000 strokes : 30.0
 Check tolerance
 cm³/1000s. ± : 15.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1050
 Del. quantity
 cm³/1000 strokes : 70.5

Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 73.5
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 str. +- : 4.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 73.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5

Check tolerance
cm³/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 2.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm +- : 0,2
Dimension MS mm : 1,0
Tolerance mm +- : 0,2
SVS dimension mm : 1,6

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 40,7..46,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.96
Test oil : ISO 4113

Part no. : 0 460 426 200
Pump designation : VE6/12F1100R381-8

Customer-spec. information
Customer : CDC
Motor : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm ± : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 3.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 36.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 70.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 SV travel mm : 6.5
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 SV travel mm : 1.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 5.4
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Supply pump
 pressure bar : 2.7
 Tolerance bar ± : 0.3

Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1100
 Overflow quantity
 ccm/10s : 75.0
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 55.5
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 16.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 36.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1160
 Del. quantity
 cm³/1000 strokes : 30.0
 Check tolerance
 cm³/1000S. ± : 15.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 49.5

Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 str. + : 4.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1100
Del. quantity
cm3/1000 strokes : 50.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5

Check tolerance
cm3/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 480
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 str. + : 10.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2
Dimension MS mm : 1,2
Tolerance mm + : 0,2
SVS dimension mm : 1,7

CONTROL LEVER POSITION SET

Control Lever
position YA mm : 34,8..38,8
Control Lever
position YB mm : 30,7..44,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.08.96
Test oil : ISO 4113
Part no. : 3 282 241
Pump designation : VE6/12F1250R498D

Customer-spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1070
Setting mm : 1.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1070
Supply pump
pressure bar : 6.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1100
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 86.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 72.7
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24
Check tolerance
cm³/1000S. : 6.0
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 10.5
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
 Pressure hPa : 1070
 Del. quantity
 cm³/1000 strokes : 51.6
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1070
 SV travel mm : 2.4
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500

Aneroid pressure
 hPa : 1070
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 450
 SV travel mm : 2.4
 Tolerance mm ± : 0.5
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1070

SV travel mm : 0.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1070
 Supply pump
 pressure bar : 7.6
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1070
 Supply pump
 pressure bar : 6.2
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1070
 Supply pump
 pressure bar : 4.4
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Aneroid pressure
hPa : 1070
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s +- : 27.7

Check tolerance
ccm/10s +- : 27.7
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1380
Aneroid pressure
hPa : 1070
Del. quantity
cm³/1000 strokes : 51.6
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1420
Aneroid pressure
hPa : 1070
Del. quantity
cm³/1000 strokes : 20.0
Check tolerance
cm³/1000S. +- : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1485
Aneroid pressure
hPa : 1070
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 500

Aneroid pressure
hPa : 460
Del. quantity
cm³/1000 strokes : 89.4
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Aneroid pressure
hPa : 1070
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Aneroid pressure
hPa : 1070
Del. quantity
cm³/1000 strokes : 86.6
Tolerance
cm³/1000 str. +- : 5.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1100
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 86.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1070
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35
Tolerance mm ± : 0,15
SVS dimension mm : 3,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,8..49,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.10.96
Test oil : ISO 4113

Part no. : 0 460 414 099
Pump designation : VE4/11F2000R509-1

Customer-spec. information

Customer : ROVER
Motor : GEMINI 3 EGR
Power KW : 83.0

TEST BENCH REQUIREMENTS

Calibrating-oil return temperature °C : 55

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 116

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1600
Aneroid pressure hPa : 1000
Setting mm : 3.6
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1600
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.8
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1400
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 66.2
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 3.0
Check tolerance cm3/1000S. : 4.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 37.8
Tolerance cm3/1000 str. ± : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm3/1000 strokes : 11.5
Tolerance cm3/1000 str. ± : 2.0
Shutoff solenoid Volt : 12
Spread cm3/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 4.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 52.5
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 98.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 2000
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

SETTING GRAD. STARTING FUEL DELIVERY FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
SV travel mm : 6.4
Tolerance mm ± : 0.4

Check
tolerance mm ± : 0.9
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000

SV travel mm : 2.1
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.9
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.1
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

OVERFLOW QUANTITY

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 125.0
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.5
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 300

LDA/
HBA stroke mm : 6.4
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 65.2
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 63.3
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 66.2
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5

Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.4
Dimension K mm : 3,3

B07

Tolerance mm +- : 0,1
Dimension KF mm : 8,4
Tolerance mm +- : 0,2
MS1 dimension mm : 1,45
Tolerance mm +- : 0,15

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 42,3..46,3

Control lever
position YB mm : 50,0..61,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.10.96
Test oil : ISO 4113
Part no. : O 460 414 079
Pump designation : VE4/11F1900L217-5

Customer-spec. information
Customer : PENTA
Motor : TMD 31 B
Power KW : 74.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure hPa : 1000

Setting mm : 3.5
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.7
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 64.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 650
Del. quantity cm³/1000 strokes : 47.0
Tolerance cm³/1000 str. ± : 0.5
Check tolerance cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm³/1000 strokes : 20.0
Tolerance cm³/1000 str. ± : 1.0
Spread cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2000
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 str. +- : 2.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 str. +- : 15.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
SV travel mm : 4.7
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7

Rated speed rpm : 1300
Aneroid pressure
hPa : 1000
SV travel mm : 2.0
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.0
Tolerance bar +- : 0.3

Rated speed rpm : 800

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.4
Tolerance bar +- : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 650
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 83.3
Tolerance
ccm/10s +- : 27.7

Check tolerance
ccm/10s +- : 27.7

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 4.0

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

Rated speed rpm : 900
Aneroid pressure
hPa : 260

LDA/
HBA stroke mm : 6.3
Del. quantity
cm³/1000 strokes : 62.5
Tolerance
cm³/1000 str. +- : 0.5

Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 65.5
Tolerance
cm³/1000 str. ± : 2.5

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 64.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 2.3

MECHANICAL SHUTOFF

Rated speed rpm : 1900
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 450

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 6.0

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 10.0

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 10.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.3
Dimension KF mm : 5,4
Tolerance mm ± : 0,2
Dimension MS mm : 1,3
Tolerance mm ± : 0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 53,0..61,0

End of test-specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.10.96
Test oil : ISO 4113
Part no. : 0 460 426 218
Pump designation : VE6/12F1950L527

Customer-spec. information
Customer : PENTA
Motor : TAMD 41 P
Power KW : 155.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 55
Tolerance °C ± : 1
Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 110

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure hPa : 1500
Setting mm : 3.5
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1500
Supply pump pressure bar : 8.0
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1500
Del. quantity cm³/1000 strokes : 84.0
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 57.0
Tolerance cm³/1000 str. ± : 0.5
Check tolerance cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 325
Del. quantity cm³/1000 strokes : 23.0
Tolerance cm³/1000 str. ± : 2.0
Spread cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2050
Pressure hPa : 1500
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 20.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1800
Aneroid pressure
hPa : 1500
SV travel mm : 4.7
Tolerance mm ± : 0.5
Check
tolerance mm ± : 0.7

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500

SV travel mm : 1.6
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 9.3
Tolerance bar ± : 0.3

Rated speed rpm : 800

Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 5.5
Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1500
Aneroid pressure
hPa : 1500
Overflow quantity
ccm/10s : 166.6
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 27.7

Rated speed rpm : 600
Aneroid pressure
hPa : 1500
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2050
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 8.0

Rated speed rpm : 2200
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 str. ± : 8.0
Check tolerance
cm³/1000S. ± : 10.0

Rated speed rpm : 2300
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm3/1000s. + : 1.5

Rated speed rpm : 800
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 84.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000s. + : 4.0

Rated speed rpm : 1900
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 79.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000s. + : 3.5

Rated speed rpm : 1250
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 87.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000s. + : 3.0

Rated speed rpm : 1500
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 84.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000s. + : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1900
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000s. + : 1.5
Spread
cm3/1000 strokes : 5.0

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000s. + : 1.5
Spread
cm3/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000s. + : 1.5

START TRANSITION

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. + : 10.0

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 100.0
Tolerance
cm3/1000 str. + : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 6,6
Tolerance mm + : 0,2
Dimension MS mm : 1,3
Tolerance mm + : 0,2
SVS dimension mm : 2,9

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 48,1..55,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.09.89
Test oil : ISO 4113
Part no. : 0 460 484 034
Pump designation : VE4/8F2300R171-2

Customer-spec. information
Customer : PSA
Motor : XUD7

TEST BENCH REQUIREMENTS

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,3
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.6
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump pressure bar : 4.6
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity cm3/1000 strokes : 28.5
Tolerance cm3/1000 str. +- : 0.5
Spread cm3/1000 strokes : 2.0
Shutoff solenoid Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity cm3/1000 strokes : 4.0
Tolerance cm3/1000 str. +- : 0.5
Shutoff solenoid Volt : 12

IDLE DELIVERY

Rated speed rpm : 375
Del. quantity cm3/1000 strokes : 10.0
Tolerance cm3/1000 str. +- : 2.0
Spread cm3/1000 strokes : 2.0
Shutoff solenoid Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 450
Del. quantity cm3/1000 strokes : 10.0
Tolerance cm3/1000 str. +- : 2.0

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2440
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 7.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12
Rated speed rpm : 800
SV travel mm : 1.2
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12
Rated speed rpm : 800
Supply pump
pressure bar : 3.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s ± : 20.8

Check tolerance
ccm/10s ± : 20.8
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2440
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000s. ± : 4.0
Shutoff solenoid
Volt : 12
Rated speed rpm : 2540
Del. quantity
cm³/1000 strokes : 14.5
Check tolerance
cm³/1000s. ± : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2690
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 str. ± : 3.5
Check tolerance
cm³/1000S. ± : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 str. ± : 1.0
Check tolerance
cm³/1000S. ± : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 str. ± : 1.0
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 str. ± : 1.0
Check tolerance
cm³/1000S. ± : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 2.3
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2250
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -9.0
Tolerance
cm³/1000 str. ± : 4.0
Check tolerance
cm³/1000S. ± : 6.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.1
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 str. ± : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : 0,1
Dimension KF mm : 5,5
Tolerance mm ± : 0,2
Dimension MS mm : 1,4
Tolerance mm ± : 0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.11.96
Test oil : ISO 4113

Part no. : 0 460 485 032
Pump designation : VE5/8F2100L545-6

Customer-spec. information

Customer : VW
Motor : 2,4L SD
Power kW : 57.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.4
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 36.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 8.0

Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY
 SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -7.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.4
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
 SV travel mm : 5.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 0.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
 Supply pump
 pressure bar : 7.5
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Supply pump
 pressure bar : 5.3
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6
 Check tolerance
 ccm/10s ± : 55.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 str. + : 5.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 31.0
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 33.8
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 490
Del. quantity
cm3/1000 strokes : 7.8
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -6.5
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar ± : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm ± : 0.2
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. ± : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : 0,1
Dimension KF mm : 5,8
Tolerance mm ± : 0,2
Dimension MS mm : 1,4
Tolerance mm ± : 0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 38,5..49,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.11.96
Test oil : ISO 4113
Part no. : 0 460 414 149
Pump designation : VE4/11F1150L704

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8045.05B.241
Power kW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200
Setting mm : 0.7
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Supply pump pressure bar : 8.9
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 72.0
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 3.5
Shutoff solenoid Volt : 12

IDLE SETTING

Rated speed rpm : 325
Del. quantity cm³/1000 strokes : 8.0
Tolerance cm³/1000 str. ± : 2.0
Shutoff solenoid Volt : 12
Spread cm³/1000 strokes : 3.5
Check tolerance cm³/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1210
Del. quantity cm³/1000 strokes : 45.6
Tolerance cm³/1000 str. ± : 2.0
Shutoff solenoid Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
 cm³/1000 strokes : 120.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1300
 SV travel mm : 1.6
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.4
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 400
 Supply pump
 pressure bar : 4.9
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Supply pump
 pressure bar : 6.8
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1125
 Overflow quantity
 ccm/10s : 86.1
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 400
 Overflow quantity
 ccm/10s : 66.6
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 16.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1210
 Del. quantity
 cm³/1000 strokes : 45.6
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000s. ± : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 21.4
 Check tolerance
 cm³/1000s. ± : 7.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1340
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1125
 Del. quantity
 cm³/1000 strokes : 63.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 650
 Del. quantity
 cm³/1000 strokes : 69.3
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000s. ± : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 66.0

Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 72.0
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 430
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 275

Del. quantity
cm3/1000 strokes : 31.5
Tolerance
cm3/1000 str. +- : 3.5
Check tolerance
cm3/1000S. +- : 5.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 150
Del. quantity
cm3/1000 strokes : 125.0
Tolerance
cm3/1000 str. +- : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : 0,1
Dimension KF mm : 6,4
Tolerance mm +- : 0,2
MS1 dimension mm : 1,7
Tolerance mm +- : 0,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113

Part no. : 0 460 426 272
Pump designation : VE6/12F1050R381-9

Customer-spec. information
Customer : CUMMINS
Motor : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm +- : 0,02(0,06)
Outlet : 0

Prestroke

(as of UT) mm : 0,3
Tolerance mm +- : 0,02
Check
tolerance mm +- : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.4
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 4.2
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 75.0
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 4.5
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 18.5
Tolerance
cm3/1000 str. +- : 3.0
Shutoff solenoid
Volt : 24
Spread
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. ± : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
 SV travel mm : 5.5
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 SV travel mm : 2.0
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
 Supply pump
 pressure bar : 5.4
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Supply pump
 pressure bar : 3.2
 Tolerance bar ± : 0.3

Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1050
 Overflow quantity
 ccm/10s : 75.0
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 55.5
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 16.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1180
 Del. quantity
 cm³/1000 strokes : 28.0
 Check tolerance
 cm³/1000s. ± : 15.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1240
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1050
 Del. quantity
 cm³/1000 strokes : 71.0

Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 str. +- : 4.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 2.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 str. +- : 4.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130

Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm ± : 0,2
Dimension MS mm : 1,0
Tolerance mm ± : 0,2
SVS dimension mm : 1,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113
Part no. : 0 460 494 417
Pump designation : VE4/9F2100R471-3

Customer-spec. information
Customer : VW
Motor : 1.9L UD
Power KW : 50.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 688 901 111

Opening pressure bar : 147
Tolerance bar ± : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.9
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump pressure bar : 5.6
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity cm3/1000 strokes : 40.0
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 2.5
Shutoff solenoid Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity cm3/1000 strokes : 5.5
Tolerance cm3/1000 str. ± : 0.5
Shutoff solenoid Volt : 12

IDLE DELIVERY

Rated speed rpm : 425
Del. quantity cm3/1000 strokes : 11.0
Tolerance cm3/1000 str. ± : 1.0
Spread cm3/1000 strokes : 2.0
Shutoff solenoid Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 11.0

Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1700
SV travel mm : 6.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
SV travel mm : 1.5
Tolerance mm + : 0.4
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1700
Supply pump
pressure bar : 6.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 4.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1850
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s +- : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 str. +- : 5.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1850
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 38.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 515
Del. quantity
cm³/1000 strokes : 6.5
Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000S. +- : 2.5

Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -0.9
Tolerance bar + : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + : 0.2
Check
tolerance mm + : 0.6

Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : 0,1
Dimension KF mm : 5,3
Tolerance mm +- : 0,2
Dimension MS mm : 1,3
Tolerance mm +- : 0,1

MICROSWITCH
SET

: ARF 12,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 20,0..22,0

Control lever
position YB mm : 61,5..72,5

End of test-specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.07.96
Test oil : ISO 4113

Part no. : O 460 414 126
Pump designation : VE4/11F1800R647

Customer-spec. information

Customer : JEBSEN
Motor : DI 493 Q
Power KW : 56.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.2
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump pressure bar : 7.0
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Rated speed rpm : 550
Del. quantity cm3/1000 strokes : 42.0
Del. quantity cm3/1000 strokes : 24.5
Tolerance cm3/1000 str. ± : 0.5
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 3.5
Spread cm3/1000 strokes : 3.5
Shutoff solenoid Volt : 12
Shutoff solenoid Volt : 12
Check tolerance cm3/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 300
Del. quantity cm3/1000 strokes : 20.5
Tolerance cm3/1000 str. ± : 2.0
Shutoff solenoid Volt : 12
Spread cm3/1000 strokes : 3.0
Check tolerance cm3/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1950
 Del. quantity
 cm³/1000 strokes : 36.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1800
 SV travel mm : 5.6
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 SV travel mm : 0.8
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1700
 SV travel mm : 5.2
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1800
 Supply pump
 pressure bar : 9.0
 Tolerance bar ± : 0.3

Shutoff solenoid
 Volt : 12
 Rated speed rpm : 800
 Supply pump
 pressure bar : 5.3
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 550
 Overflow quantity
 ccm/10s : 111.1
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1800
 Overflow quantity
 ccm/10s : 152.7
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1950
 Del. quantity
 cm³/1000 strokes : 36.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000s. ± : 4.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2050
 Del. quantity
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000s. ± : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Del. quantity
 cm³/1000 strokes : 2.5
 Tolerance
 cm³/1000 str. ± : 2.5

Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. + : 10.0
Check tolerance
cm³/1000S. + : 10.0
Shutoff solenoid
Volt : 12

Aneroid pressure
hPa :

LDA/
HBA stroke mm : 6.8

Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 48.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5

Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 42.5
Tolerance
cm³/1000 str. + : 5.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 470
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 370
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.8
Dimension K mm : 3,3
Tolerance mm ± : 0,1
Dimension KF mm : 8,4
Tolerance mm ± : 0,2
Dimension MS mm : 1,2
Tolerance mm ± : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 36,2..40,2

Control lever
position YB mm : 48,3..53,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.12.96
Test oil : ISO 4113
Part no. : 0 460 414 154
Pump designation : VE4/11F2000R711

Customer-spec. information
Customer : OTOSAN
Motor : 2.5L-DITC
Power KW : 74.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1
Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,62
Tolerance mm +- : 0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting mm : 3.2
Tolerance mm +- : 0.3
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.0
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 str. +- : 0.2
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 str. +- : 0.5
Spread
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425

Del. quantity
 cm³/1000 strokes : 7.7
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 17.8
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY
 SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -5.6
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -1.8
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1500
 Aneroid pressure
 hPa : 1000
 SV travel mm : 4.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 1.9
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 9.0
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.3
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 133.3
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 152.7
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 17.8
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000s. +- : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2150
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 24.5
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000s. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2350
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5

Check tolerance
 cm3/1000s. +- : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 450

LDA/
 HBA stroke mm : 5.3
 Del. quantity
 cm3/1000 strokes : 35.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000s. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 42.0
 Tolerance
 cm3/1000 str. +- : 1.2
 Check tolerance
 cm3/1000s. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 42.0
 Tolerance
 cm3/1000 str. +- : 1.2
 Check tolerance
 cm3/1000s. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 42.0
 Tolerance
 cm3/1000 str. +- : 0.2
 Check tolerance
 cm3/1000s. +- : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -8.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.8
Tolerance
cm³/1000 str. +- : 0.1
Check tolerance
cm³/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500

Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.5
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm +- : 0.6
Check
tolerance mm +- : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.3
Dimension K mm : 2,8
Tolerance mm +- : 0,1
Dimension KF mm : 8,4
Tolerance mm +- : 0,2
MS1 dimension mm : 1,8
Tolerance mm +- : 0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 42,8..45,8

Control lever
position YB mm : 59,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.06.84
Test oil : ISO 4113

Part no. : 0 460 494 044
Pump designation : VE4/9F2300R54

Customer-spec. information
Customer : FIAT-AUTO
Motor : X 8 / 28

TEST BENCH REQUIREMENTS

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 000

Opening pressure bar : 147
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 4.5
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump pressure bar : 5.4
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity cm3/1000 strokes : 34.7
Tolerance cm3/1000 str. +- : 0.5
Spread cm3/1000 strokes : 2.5
Shutoff solenoid Volt : 12

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm3/1000 strokes : 10.0
Tolerance cm3/1000 str. +- : 2.0
Shutoff solenoid Volt : 12
Spread cm3/1000 strokes : 2.5
Check tolerance cm3/1000s. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity cm3/1000 strokes : 19.0
Tolerance cm3/1000 str. +- : 3.0
Shutoff solenoid Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm3/1000 strokes : 63.0
Tolerance cm3/1000 str. +- : 15.0
Shutoff solenoid Volt : 12

LOAD-DEPENDENT START OF DELIVERY
SETTING

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.7
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2300
SV travel mm : 7.6
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
SV travel mm : 2.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2300
Supply pump
pressure bar : 7.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

Rated speed rpm : 400
Supply pump
pressure bar : 2.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 20.8

Check tolerance
ccm/10s + : 20.8
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2500
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 str. + : 1.3
Check tolerance
cm³/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 34.7
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 2.0
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -13.0
Tolerance
cm³/1000 str. + : 4.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.7
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 str. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : 0,1
Dimension KF mm : 5,8
Tolerance mm + : 0,2
Dimension MS mm : 1,8
Tolerance mm + : 0,1
SVS dimension mm : 3,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.96
Test oil : ISO 4113
Part no. : 0 460 426 252
Pump designation : VE6/12F135OR623-1

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8060.45.5200
Power KW : 152.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 55
Tolerance °C ± : 1
Overflow restriction mm : 0.55
Inlet press. bar : 0.35
Tolerance bar ± : 0.05
Test nozzle holder assembly : 1 688 901 027
Opening pressure bar : 250
Tolerance bar ± : 3
Test lines : 1 680 750 073
Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1050
Aneroid pressure hPa : 1000
Setting mm : 2.2
Tolerance mm ± : 0.1
Shutoff solenoid Volt : 24
KSB/AFB Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 5.8
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 24
KSB/AFB Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 82.9
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 3.5
Check tolerance cm³/1000s. : 5.0
Shutoff solenoid Volt : 24
KSB/AFB Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 47.1
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm³/1000s. : 5.0
KSB/AFB Volt : 24

IDLE SETTING

Rated speed rpm : 340
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 5.0
 KSB/AFB Volt : 24

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1450
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 57.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 950
 Aneroid pressure
 hPa : 1000
 SV travel mm : 1.0
 Tolerance mm ± : 0.3
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24
 Setting point KSB
 Rated speed rpm : 340
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.2
 Tolerance mm ± : 0.8
 Check
 tolerance mm ± : 1.2
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 470
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.2
 Tolerance mm ± : 0.8
 Check
 tolerance mm ± : 1.2
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.7
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.4
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

Rated speed rpm : 470
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 9.0
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 340

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.3
Tolerance bar + : 1.0
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 83.3
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 27.7
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 16.6
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1450
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1530
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 27.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 400

Del. quantity
cm³/1000 strokes : 70.7
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 79.8
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 84.1
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5

Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24
 Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 85.2
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000S. ± : 3.5
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24
 Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 82.9
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 3.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 425
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24
 Rated speed rpm : 370
 Del. quantity
 cm³/1000 strokes : 5.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 5.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

START TRANSITION

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. ± : 10.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

Rated speed rpm : 200
 Del. quantity
 cm³/1000 strokes : 100.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
 Tolerance mm ± : 0,1

Dimension KF mm : 8,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,45
Tolerance mm ± : 0,15

End of test-specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.97
Test oil : ISO 4113

Part no. : 0 460 494 393
Pump designation : VE4/9F2250R593-2

Customer-spec. information
Customer : RENAULT
Motor : G8T - 760
Power KW : 31.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting mm : 2.8
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.4
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 58.7
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 43.0
Tolerance
cm3/1000 str. +- : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING
RESIDUAL QUANTITY SETTING

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 str. +- : 2.0

Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 str. ± : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -8.5
Tolerance
cm³/1000 str. ± : 1.0

Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.7
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
SV travel mm : 5.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
SV travel mm : 1.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

SV travel mm : 2.7
Tolerance mm ± : 1.2
Check
tolerance mm ± : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.6
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 3.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 4.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 2525
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 300

LDA/
HBA stroke mm : 7.3
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 56.7
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 57.2
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 58.7
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -11.0
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -0.7
Tolerance
cm3/1000 str. +- : 0.1
Check tolerance
cm3/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm +- : 0.2
Check
tolerance mm +- : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 37.0
Tolerance
cm3/1000 str. +- : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.3
Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,0
Tolerance mm ± : 0,2
Dimension MS mm : 0,9
Tolerance mm ± : 0,2

POTENTIOMETER
SET

1. measurement
voltage Volt : 5.0
1. measurement
voltage Volt : 4,5

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..41,2

Control lever
position YB mm : 63,3..71,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.97
Test oil : ISO 4113

Part no. : 0 460 494 394
Pump designation : VE4/9F2250R593-3

Customer-spec. information

Customer : RENAULT
Motor : G8T - 760 CA
Power KW : 81.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Setting mm : 2.8
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Supply pump pressure bar : 5.4
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 58.7
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 2.5
Check tolerance cm³/1000S. : 3.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 43.0
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 450
Del. quantity cm³/1000 strokes : 7.0
Tolerance cm³/1000 str. ± : 2.0

Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 str. ± : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -8.5
Tolerance
cm³/1000 str. ± : 1.0

Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.7
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
SV travel mm : 5.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
SV travel mm : 1.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
SV travel mm : 2.7
Tolerance mm ± : 1.2
Check
tolerance mm ± : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.6
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 3.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 4.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 2525
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 300

LDA/
HBA stroke mm : 7.3
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 56.7
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 57.2
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 58.7
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -11.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.7
Tolerance
cm³/1000 str. +- : 0.1
Check tolerance
cm³/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm +- : 0.2
Check
tolerance mm +- : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 str. +- : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.3
Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : 6,0
Tolerance mm + : 0,2
Dimension MS mm : 0,9
Tolerance mm + : 0,2

POTENTIOMETER
SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 4,5

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..41,2
Control lever
position YB mm : 63,3..71,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.97
Test oil : ISO 4113

Part no. : 0 460 494 425
Pump designation : VE4/9F2250R593-4

Customer-spec. information

Customer : RENAULT
Motor : G8T - 740/716
Power KW : 81.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Setting mm : 2.8
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Supply pump pressure bar : 5.4
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 58.7
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 2.5
Check tolerance cm³/1000S. : 3.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 43.0
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 450
Del. quantity cm³/1000 strokes : 7.0
Tolerance cm³/1000 str. ± : 2.0

Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 str. + : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -8.5
Tolerance
cm³/1000 str. + : 1.0

Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.7
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
SV travel mm : 5.9
Tolerance mm + : 0.4
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
SV travel mm : 1.9
Tolerance mm + : 0.4
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
SV travel mm : 2.7
Tolerance mm + : 1.2
Check
tolerance mm + : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2150
Aneroid pressure hPa : 1000
Supply pump pressure bar : 7.6
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

Rated speed rpm : 500
Aneroid pressure hPa : 1000
Supply pump pressure bar : 3.5
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity ccm/10s : 63.8
Tolerance ccm/10s ± : 16.6

Check tolerance ccm/10s ± : 22.2
Shutoff solenoid Volt : 12

Rated speed rpm : 2150
Aneroid pressure hPa : 1000
Overflow quantity ccm/10s : 97.2
Tolerance ccm/10s ± : 27.7

Check tolerance ccm/10s ± : 41.6
Shutoff solenoid Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 30.0
Tolerance cm³/1000 str. ± : 3.0
Check tolerance cm³/1000S. ± : 4.0

Shutoff solenoid Volt : 12

Rated speed rpm : 2525
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 10.0
Check tolerance cm³/1000S. ± : 6.0
Shutoff solenoid Volt : 12

Rated speed rpm : 2600
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 2.5
Tolerance cm³/1000 str. ± : 2.5
Check tolerance cm³/1000S. ± : 2.5
Shutoff solenoid Volt : 12

Rated speed rpm : 750
Aneroid pressure hPa : 300

LDA/
HBA stroke mm : 7.3
Del. quantity cm³/1000 strokes : 50.0
Tolerance cm³/1000 str. ± : 0.5
Check tolerance cm³/1000S. ± : 2.3
Shutoff solenoid Volt : 12

Rated speed rpm : 2150
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 56.7
Tolerance cm³/1000 str. ± : 1.0
Check tolerance cm³/1000S. ± : 2.3
Shutoff solenoid Volt : 12

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 59.0
Tolerance cm³/1000 str. ± : 1.5

Check tolerance
 cm³/1000S. + : 2.3
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 57.2
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 2.3
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.7
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 2.3
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -11.0
 Tolerance
 cm³/1000 str. + : 2.5
 Check tolerance
 cm³/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -0.7
 Tolerance
 cm³/1000 str. + : 0.1
 Check tolerance
 cm³/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 5.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm + : 0.2
 Check
 tolerance mm + : 0.3
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 37.0
 Tolerance
 cm³/1000 str. + : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.3
Dimension K mm : 3,7
Tolerance mm ← : 0,1
Dimension KF mm : 6,0
Tolerance mm + : 0,2
Dimension MS mm : 0,9
Tolerance mm + : 0,2

POTENTIOMETER
SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 4,5

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..41,2

Control lever
position YB mm : 63,3..71,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.97
Test oil : ISO 4113

Part no. : 0 460 494 426
Pump designation : VE4/9F2250R593-5

Customer-spec. information
Customer : RENAULT
Motor : G8T - 740/716 CA
Power KW : 81.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure hPa : 1000

Setting mm : 2.8
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 1000

Supply pump pressure bar : 5.4
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 58.7
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 2.5
Check tolerance cm³/1000S. : 3.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 43.0
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 450
Del. quantity cm³/1000 strokes : 7.0
Tolerance cm³/1000 str. ± : 2.0

Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 str. ± : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -8.5
Tolerance
cm³/1000 str. ± : 1.0

Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.7
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
SV travel mm : 5.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
SV travel mm : 1.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
SV travel mm : 2.7
Tolerance mm ± : 1.2
Check
tolerance mm ± : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2150
Aneroid pressure hPa : 1000
Supply pump pressure bar : 7.6
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

Rated speed rpm : 500
Aneroid pressure hPa : 1000
Supply pump pressure bar : 3.5
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity ccm/10s : 63.8
Tolerance ccm/10s ± : 16.6

Check tolerance ccm/10s ± : 22.2
Shutoff solenoid Volt : 12

Rated speed rpm : 2150
Aneroid pressure hPa : 1000
Overflow quantity ccm/10s : 97.2
Tolerance ccm/10s ± : 27.7

Check tolerance ccm/10s ± : 41.6
Shutoff solenoid Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 30.0
Tolerance cm³/1000 str. ± : 3.0
Check tolerance cm³/1000S. ± : 4.0

Shutoff solenoid Volt : 12

Rated speed rpm : 2525
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 10.0
Check tolerance cm³/1000S. ± : 6.0
Shutoff solenoid Volt : 12

Rated speed rpm : 2600
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 2.5
Tolerance cm³/1000 str. ± : 2.5
Check tolerance cm³/1000S. ± : 2.5
Shutoff solenoid Volt : 12

Rated speed rpm : 750
Aneroid pressure hPa : 300

LDA/
HBA stroke mm : 7.3
Del. quantity cm³/1000 strokes : 50.0
Tolerance cm³/1000 str. ± : 0.5
Check tolerance cm³/1000S. ± : 2.3
Shutoff solenoid Volt : 12

Rated speed rpm : 2150
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 56.7
Tolerance cm³/1000 str. ± : 1.0
Check tolerance cm³/1000S. ± : 2.3
Shutoff solenoid Volt : 12

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 59.0
Tolerance cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 57.2
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 58.7
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -11.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.7
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + : 0.2
Check
tolerance mm + : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 str. + : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.3
Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,0
Tolerance mm ± : 0,2
Dimension MS mm : 0,9
Tolerance mm ± : 0,2

POTENTIOMETER
SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 4,5

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..41,2
Control lever
position YB mm : 63,3..71,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.97
Test oil : ISO 4113

Part no. : 0 460 426 141
Pump designation : VE6/12F1250R372

Customer-spec. information
Customer : CDC
Motor : 6BT-5.5 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,3
Tolerance mm ± : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.6
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump pressure bar : 3.8
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1100
Del. quantity cm³/1000 strokes : 75.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 4.0
Shutoff solenoid Volt : 12

IDLE SETTING

Rated speed rpm : 360
Del. quantity cm³/1000 strokes : 11.0
Tolerance cm³/1000 str. ± : 3.0
Shutoff solenoid Volt : 12
Spread cm³/1000 strokes : 5.5
Check tolerance cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1300
 Del. quantity
 cm³/1000 strokes : 59.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. ± : 30.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 SV travel mm : 5.9
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 SV travel mm : 1.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 5.1
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 2.7
 Tolerance bar ± : 0.3

Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
 Overflow quantity
 ccm/10s : 69.4
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 50.0
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1300
 Del. quantity
 cm³/1000 strokes : 59.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1350
 Del. quantity
 cm³/1000 strokes : 30.0
 Check tolerance
 cm³/1000s. ± : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 73.0

Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. ± : 4.0
Check tolerance
cm³/1000S. ± : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 75.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 360
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 360
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 2.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm ± : 0,2
Dimension MS mm : 0,8
Tolerance mm ± : 0,2
SVS dimension mm : 1,4

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 41,0..46,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.97
Test oil : ISO 4113

Part no. : 0 460 426 142
Pump designation : VE6/12F1250R373

Customer-spec. information
Customer : CUMMINS
Motor : 6 BTA-590IND.

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,85
Tolerance mm ± : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Setting mm : 1.5
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Supply pump pressure bar : 3.5
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 87.0
Tolerance cm³/1000 str. ± : 0.2
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 68.5
Tolerance cm³/1000 str. ± : 0.5

Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1300
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 70.5
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
SV travel mm : 2.6
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

Shutoff solenoid
Volt : 12
Rated speed rpm : 600
Aneroid pressure
hPa : 1000
SV travel mm : 0.8
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 2.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 66.6
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 50.0
Tolerance
ccm/10s ± : 16.6

Check tolerance
ccm/10s ± : 20.8
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 70.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1330
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 40.0
 Check tolerance
 cm³/1000S. ± : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 400
 Del. quantity
 cm³/1000 strokes : 79.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 80.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 84.0
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 87.0
 Tolerance
 cm³/1000 str. ± : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 87.0
 Tolerance
 cm³/1000 str. ± : 0.2
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 2.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm +- : 0,2
Dimension MS mm : 1,2
Tolerance mm +- : 0,2

SVS dimension mm : 2,3

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 42,8..48,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.97
Test oil : ISO 4113

Part no. : 0 460 426 151
Pump designation : VE6/12F1100R373-5

Customer-spec. information
Customer : CDC
Motor : 6 BT 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,85
Tolerance mm ± : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Setting mm : 1.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 3.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 66.5
Tolerance
cm³/1000 str. ± : 0.5

Spread
 cm³/1000 strokes : 9.0
 Shutoff solenoid
 Volt : 12
 Check tolerance
 cm³/1000S. : 9.0
 Check tolerance
 cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 11.0
 Tolerance
 cm³/1000 str. +- : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 67.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 110.0
 Tolerance
 cm³/1000 str. +- : 30.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.9

Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12
 Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 SV travel mm : 0.7
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.0
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 2.9
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 50.0
 Tolerance
 ccm/10s +- : 16.6
 Check tolerance
 ccm/10s +- : 20.8
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 69.4
 Tolerance
 ccm/10s +- : 27.7
 Check tolerance
 ccm/10s +- : 41.6

Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 67.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 25.0
Check tolerance
cm³/1000S. ± : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1260
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 400
Del. quantity
cm³/1000 strokes : 78.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. ± : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 2.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 440
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 280
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm +- : 0,2

Dimension MS mm : 1,2
Tolerance mm +- : 0,2
SVS dimension mm : 2,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 42,0..47,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Part no. : 0 460 424 057
Pump designation : VE4/12F1250R374

Customer-spec. information
Customer : CUMMINS
Motor : 4 BTA 3.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,55
Tolerance mm +- : 0,02(0,06)
Outlet : A

Prestroke

(as of UT) mm : 0,3
Tolerance mm +- : 0,02
Check
tolerance mm +- : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Setting mm : 4.2
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.9
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 88.5
Tolerance
cm³/1000 str. +- : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 64.5
Tolerance
cm³/1000 str. +- : 0.5

Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 365
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1310
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
SV travel mm : 5.3
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7

Shutoff solenoid
Volt : 12
Rated speed rpm : 500
Aneroid pressure
hPa : 1000
SV travel mm : 2.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.0
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 16.6
Check tolerance
ccm/10s + : 20.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Overflow quantity
 ccm/10s : 80.5
 Tolerance
 ccm/10s +- : 27.7

 Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1310
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 68.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Check tolerance
 cm³/1000S. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 35.0
 Check tolerance
 cm³/1000S. +- : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1420
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 350
 Del. quantity
 cm³/1000 strokes : 77.5
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250

Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 78.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 81.0
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 95.5
 Tolerance
 cm³/1000 str. +- : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 88.5
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. +- : 1.5

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 365
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 365
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 2.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 str. ± : 30.0

Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm ± : 0,2
Dimension MS mm : 1,2
Tolerance mm ± : 0,2
SVS dimension mm : 2,3

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,1..48,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.96
Test oil : ISO 4113
Part no. : 0 460 414 141
Pump designation : VE4/11F2000R686

Customer-spec. information
Customer : FORD
Motor : 2.5L-DI 70 PS
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

E05

Plunger stroke mm : 0,35
Tolerance mm +- : 0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.7
Tolerance mm +- : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 7.4
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 35.8
Del. quantity
cm3/1000 strokes : 31.2
Tolerance
cm3/1000 str. +- : 0.5
Tolerance
cm3/1000 str. +- : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000s. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 7.8
Tolerance
cm3/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000s. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
Del. quantity
cm3/1000 strokes : 31.5
Tolerance
cm3/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 48.2
Tolerance
cm3/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 6.4
Tolerance mm + : 0.4
Check
tolerance mm + : 0.9
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
SV travel mm : 1.5
Tolerance mm + : 0.4
Check
tolerance mm + : 0.9
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 9.0
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500

Supply pump
pressure bar : 5.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150
Supply pump
pressure bar : 7.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 119.4
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 16.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1950
Overflow quantity
ccm/10s : 150.0
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 27.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
Del. quantity
cm3/1000 strokes : 31.5
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 18.4
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 2.5

Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1950
Del. quantity
cm3/1000 strokes : 43.8
Tolerance
cm3/1000 str. +- : 1.2
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1700
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 str. +- : 1.2
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 31.2
Tolerance
cm3/1000 str. +- : 0.2
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5

Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 475
Del. quantity
cm3/1000 strokes : 3.8
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 26.5
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm3/1000 strokes : 28.6
Tolerance
cm3/1000 str. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 45.2
Tolerance
cm3/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 2,8
Tolerance mm +- : 0,1

Dimension KF mm : 8,4
Tolerance mm ± : 0,2
Dimension MS mm : 1,8
Tolerance mm ± : 0,2

MICROSWITCH
SET

: ARF 20,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 42,8..45,8

Control lever
position YB mm : 65,5..75,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Part no. : 0 460 424 147
Pump designation : VE4/12F1800R713-1

Customer-spec. information

Customer : IVECO-SOFIM
Motor : 8140.43.2620
Power KW : 85.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 55
Tolerance °C +- : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1100
Aneroid pressure hPa : 1200
Setting mm : 1.6
Tolerance mm +- : 0.1
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100
Aneroid pressure hPa : 1200
Supply pump pressure bar : 6.8
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1100
Aneroid pressure hPa : 1200
Del. quantity cm³/1000 strokes : 61.0
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 30.0
Tolerance cm³/1000 str. +- : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 375
Del. quantity cm³/1000 strokes : 7.0
Tolerance cm³/1000 str. +- : 2.0
Shutoff solenoid Volt : 12

Spread
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2000
 Pressure hPa : 1200
 Del. quantity
 cm³/1000 strokes : 43.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1600
 Aneroid pressure
 hPa : 1200
 SV travel mm : 3.7
 Tolerance mm ± : 0.3
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200

SV travel mm : 2.8
 Tolerance mm ± : 0.3
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1800
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 8.8
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 5.3
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1800
 Aneroid pressure
 hPa : 1200
 Overflow quantity
 ccm/10s : 166.6
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1200
 Overflow quantity
 ccm/10s : 133.3
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 43.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 4.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 20.0
 Check tolerance
 cm³/1000S. + : 7.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2200
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 2.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 2.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 400

LDA/
 HBA stroke mm : 6.2
 Del. quantity
 cm³/1000 strokes : 49.0
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1800
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 62.0
 Tolerance
 cm³/1000 str. + : 2.5
 Check tolerance
 cm³/1000S. + : 5.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 67.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 61.0
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTRL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 425

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 str. ± : 7.0
Check tolerance
cm³/1000S. ± : 10.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.2
Dimension K mm : 3,6
Tolerance mm ± : 0,1
Dimension KF mm : 8,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,65
Tolerance mm ± : 0,15

CONTROL LEVER POSITION
SET

Control Lever
position YA mm : 25,9..27,9

Control Lever
position YB mm : 64,1..73,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Part no. : D 460 424 151
Pump designation : VE4/12F1200R731

Customer-spec. information

Customer : AVIA
Motor : D 421.76
Power KW : 76.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 55
Tolerance °C ± : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1100
Aneroid pressure hPa : 1500
Setting mm : 1.0
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12
KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100
Aneroid pressure hPa : 1500
Supply pump pressure bar : 7.7
Tolerance bar ± : 0.2
Shutoff solenoid Volt : 12
KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure hPa : 1500
Del. quantity cm3/1000 strokes : 80.5
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 5.0
Shutoff solenoid Volt : 12
KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 52.0
Tolerance cm3/1000 str. ± : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm3/1000S. : 5.0
KSB/AFB Volt : 12

IDLE SETTING

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. + : 0.5
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 5.0
 KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350
 Pressure hPa : 1500
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. + : 0.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1500
 SV travel mm : 2.8
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 8.9
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 6.3
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 133.3
 Tolerance
 ccm/10s + : 16.6
 Check tolerance
 ccm/10s + : 16.6
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 161.1
 Tolerance
 ccm/10s + : 22.2
 Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 60.0
 Tolerance cm³/1000 str. ± : 0.5
 Check tolerance cm³/1000S. ± : 5.0
 Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1450
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 28.5
 Check tolerance cm³/1000S. ± : 8.0
 Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1300
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 74.0
 Tolerance cm³/1000 str. ± : 5.0
 Check tolerance cm³/1000S. ± : 8.0
 Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1550
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 1.5
 Tolerance cm³/1000 str. ± : 1.5
 Check tolerance cm³/1000S. ± : 1.5
 Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 700

Aneroid pressure hPa : 800

LDA/
 HBA stroke mm : 6.7
 Del. quantity cm³/1000 strokes : 70.0
 Tolerance cm³/1000 str. ± : 0.5
 Check tolerance cm³/1000S. ± : 4.0
 Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1200
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 82.0
 Tolerance cm³/1000 str. ± : 2.5
 Check tolerance cm³/1000S. ± : 3.5
 Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1000
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 82.0
 Tolerance cm³/1000 str. ± : 3.5
 Check tolerance cm³/1000S. ± : 5.0
 Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 700
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 80.5
 Tolerance cm³/1000 str. ± : 0.5
 Check tolerance cm³/1000S. ± : 3.0
 Shutoff solenoid Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0
KSB/AFB Volt : 12

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0
KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 str. ± : 5.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.7
Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35
Tolerance mm ± : 0,15

CONTROL LEVER POSITION SET

Control lever
position YA mm : 40,0..42,0
Control lever
position YB mm : 42,5..51,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.02.97
Test oil : ISO 4113

Part no. : 0 460 424 153
Pump designation : VE4/12F1200R737

Customer-spec. information

Customer : MAN
Motor : D 0824 LFL 08
Power Kw : 83.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C +- : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde assembly : 1 688 901 110

Opening pressure bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure hPa : 1200

Setting mm : 1.8
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure hPa : 1200

Supply pump pressure bar : 7.4
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1200

Del. quantity cm³/1000 strokes : 99.0
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 72.0

Tolerance cm³/1000 str. +- : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 400
Del. quantity cm³/1000 strokes : 20.0

Tolerance cm³/1000 str. +- : 2.5
Shutoff solenoid Volt : 24

Spread
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1280
 Pressure hPa : 1200
 Del. quantity
 cm³/1000 strokes : 79.5
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 120.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1200
 SV travel mm : 0.8
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1200
 SV travel mm : 3.3
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.4
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 8.6
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 5.4
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 125.0
 Tolerance
 ccm/10s + : 16.6
 Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1200
 Overflow quantity
 ccm/10s : 166.6
 Tolerance
 ccm/10s + : 27.7
 Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1280
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 79.5
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 4.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1380

Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000S. + : 7.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1330
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 15.0
Check tolerance
cm³/1000S. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 500
Del. quantity
cm³/1000 strokes : 107.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 95.7
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 200

Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 108.8
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 119.2
Tolerance
cm³/1000 str. + : 4.5
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 99.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. ± : 8.0
Check tolerance
cm³/1000S. ± : 10.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 190
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 24

E20

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 8,4
Tolerance mm ± : 0,2
Dimension MS mm : 1,0
Tolerance mm ± : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,4..40,4

Control lever
position YB mm : 41,9..47,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.02.97
Test oil : ISO 4113

Part no. : 0 460 426 273
Pump designation : VE6/12F1200R738

Customer-spec. information
Customer : MAN
Motor : D 0324LF18/LFL10
Power KW : 162.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Setting mm : 2.1
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 7.4
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 105.5
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 4.5
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 62.0
Tolerance
cm3/1000 str. + : 0.5
Shutoff solenoid
Volt : 24
Check tolerance
cm3/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. + : 2.0
Shutoff solenoid
Volt : 24

Spread
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1250
 Pressure hPa : 1500
 Del. quantity
 cm³/1000 strokes : 80.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 170.0
 Tolerance
 cm³/1000 str. ± : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1500
 SV travel mm : 0.8
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1500

SV travel mm : 3.3
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.4
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 8.8
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 5.1
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 136.1
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 166.6
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 80.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 4.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1370

Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000S. + : 7.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1400
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1320
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 15.0
Check tolerance
cm³/1000S. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 99.3
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 111.9
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 119.4
Tolerance
cm³/1000 str. + : 4.5
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 105.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5

Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. +- : 4.0
Check tolerance
cm³/1000S. +- : 10.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 str. +- : 40.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm +- : 0,1
Dimension KF mm : 8,4
Tolerance mm +- : 0,2
MS1 dimension mm : 1,55
Tolerance mm +- : 0,15

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.01.97
Test oil : ISO 4113
Part no. : 0 460 424 154
Pump designation : VE4/12F1000R739

Customer-spec. information
Customer : LIEBHERR
Motor : D 924T-E
Power KW : 116.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 110

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,8
Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Aneroid pressure hPa : 1000
Setting mm : 1.8
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.7
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 120.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 112.5
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 350

Del. quantity
 cm³/1000 strokes : 29.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1050
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 95.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 150.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 24

LOAD-DEPENDENT START OF DELIVERY
 SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 800
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : -25.0
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 24

PRESSURE DIFFERENCE

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. + : 0.1

Shutoff solenoid
 Volt : 24

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -1.4
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 SV travel mm : 0.8
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.8
 Tolerance bar + : 0.3

Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 6.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 38.0
Check tolerance
cm³/1000S. + : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1170
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 250
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 108.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0

Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 460
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 str. ± : 6.0
Check tolerance
cm³/1000S. ± : 10.0
Shutoff solenoid
Volt : 24

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -31.5
Tolerance
cm³/1000 str. ± : 4.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 24

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -1.4
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.1
Shutoff solenoid
Volt : 24

DELIVERY DIFFERENCE

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 24

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
SV travel mm : -1.7
Tolerance mm ± : 1.0
Check
tolerance mm ± : 1.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 210

Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 0,85
Tolerance mm ± : 0,15

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,4..40,4

Control lever
position YB mm : 39,4..44,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.97
Test oil : ISO 4113
Part no. : 0 460 424 158
Pump designation : VE4/12F1000R754

Customer-spec. information
Customer : LIEBHERR
Motor : D 924T-E
Power KW : 100.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

FO2

Plunger stroke mm : 1,8
Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Setting mm : 1.9
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump
pressure bar : 7.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DEL.IV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 103.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : -25.0
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 24

PRESSURE DIFFERENCE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 24

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : -1.5
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 900
SV travel mm : 3.0
Tolerance mm +- : 0.4

Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 700

SV travel mm : 0.9
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1000
Supply pump
pressure bar : 8.9
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Supply pump
pressure bar : 5.7
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1000
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s +- : 27.7

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 16.6

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 6.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1090
Del. quantity
cm³/1000 strokes : 38.0
Check tolerance
cm³/1000S. +- : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 95.5
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 103.5
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 103.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 460
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 str. +- : 6.0
Check tolerance
cm³/1000S. +- : 10.0
Shutoff solenoid
Volt : 24

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : -30.8
Tolerance
cm³/1000 str. +- : 4.0

Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 24

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : -1.5
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.1
Shutoff solenoid
Volt : 24

DELIVERY DIFFERENCE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 24

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 800
SV travel mm : -1.9
Tolerance mm ± : 1.0
Check
tolerance mm ± : 1.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 0,85
Tolerance mm ± : 0,15

CONTROL LEVER POSITION
SET

Control Lever
position YA mm : 37,4..40,4

Control Lever
position YB mm : 39,1..44,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.97
Test oil : ISO 4113
Part no. : 0 460 426 220
Pump designation : VE6/12F1150R534

Customer-spec. information

Customer : MWM
Motor : TD 226-B6
Power kW : 92.0

TEST BENCH REQUIREMENTS

Calibrating-oil

return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

F06

Plunger stroke mm : 1,18
Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 700
Setting mm : 2.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 700
Supply pump
pressure bar : 5.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 55.0

Tolerance
 cm³/1000 str. +- : 0.5
 Shutoff solenoid
 Volt : 12

SET GRADUATED STARTING DELIVERY
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. +- : 1.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 800
 SV travel mm : 3.6
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 SV travel mm : 0.7
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
 Supply pump
 pressure bar : 8.0
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 4.6
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1050
 Overflow quantity
 ccm/10s : 138.8
 Tolerance
 ccm/10s +- : 27.7

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 125.0
 Tolerance
 ccm/10s +- : 16.6

Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1200
 Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000s. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1270
 Del. quantity
 cm³/1000 strokes : 7.5
 Check tolerance
 cm³/1000s. +- : 7.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000s. +- : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1220
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 str. +- : 15.0
 Check tolerance
 cm³/1000s. +- : 15.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 1050
 Del. quantity
 cm³/1000 strokes : 82.1
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 92.3
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 88.6
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 88.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 2.5
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1050
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 325
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 250
 Del. quantity
 cm³/1000 strokes : 95.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 160
 Del. quantity
 cm³/1000 strokes : 125.0

Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35
Tolerance mm ± : 0,15

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.02.97
Test oil : ISO 4113
Part no. : 0 460 426 266
Pump designation : VE6/12F1100R730-1

Customer-spec. information

Customer : NH
Motor : M135
Power kW : 98.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return

temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

F10

Plunger stroke mm : 1,0
Tolerance mm ± : 0,02(0,06)
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure
hPa : 1500

Setting mm : 2.8
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 5.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000s. : 5.0

IDLE SETTING

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000s. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1180
 Pressure hPa : 1500
 Del. quantity
 cm³/1000 strokes : 48.5
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 110.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 SV travel mm : 3.8
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 SV travel mm : 1.7

Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 7.7
 Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 4.7
 Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 130.5
 Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 16.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1180
 Aneroid pressure
 hPa : 1500

Del. quantity
 cm³/1000 strokes : 48.5
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000S. +- : 8.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 68.0
 Tolerance
 cm³/1000 str. +- : 8.0
 Check tolerance
 cm³/1000S. +- : 8.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 1220
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 650
 Aneroid pressure
 hPa : 600

 LDA/
 HBA stroke mm : 4.0
 Del. quantity
 cm³/1000 strokes : 91.5
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 77.0
 Tolerance
 cm³/1000 str. +- : 2.5
 Check tolerance
 cm³/1000S. +- : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 103.0
 Tolerance
 cm³/1000 str. +- : 4.0
 Check tolerance
 cm³/1000S. +- : 5.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5

Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 4.0
Dimension K mm : 3,7
Tolerance mm +- : 0,1
Dimension KF mm : 6,4
Tolerance mm +- : 0,2
Dimension MS mm : 1,4
Tolerance mm +- : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 41,2..47,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.03.97
Test oil : ISO 4113

Part no. : 0 460 426 234
Pump designation : VE6/12F1100R582

Customer-spec. information
Customer : CASE
Motor : 6T-590

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm ± : 0,02 (0,06)
Outlet : 0

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750

Setting mm : 3.2
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 3.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 70.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1160
Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 str. + : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 85.0
Tolerance
cm3/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1000
SV travel mm : 5.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
SV travel mm : 1.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1000
Supply pump
pressure bar : 4.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Supply pump
pressure bar : 3.0
Tolerance bar + : 0.3

Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1000
Overflow quantity
ccm/10s : 69.4
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Overflow quantity
ccm/10s : 55.5
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1160
Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1200
Del. quantity
cm3/1000 strokes : 30.0
Check tolerance
cm3/1000S. + : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 70.0

Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 36.5
Tolerance
cm³/1000 str. + : 4.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 70.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2
MS1 dimension mm : 1,4
Tolerance mm + : 0,1
SVS dimension mm : 2,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 37,9..43,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Part no. : 0 460 426 262
Pump designation : VE6/12F1100R729

Customer-spec. information
Customer : NH
Motor : EP040B-M115
Power KW : 89.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1
Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 688 901 110

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,0
Tolerance mm ± : 0,02(0,06)
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 700
Setting mm : 1.7
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 700
Supply pump pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 66.5
Del. quantity cm³/1000 strokes : 70.0
Tolerance cm³/1000 str. ± : 0.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Shutoff solenoid Volt : 12
Shutoff solenoid Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity cm³/1000 strokes : 15.0
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 12
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1180
 Del. quantity
 cm³/1000 strokes : 33.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 850
 SV travel mm : 2.3
 Tolerance mm ± : 0.6
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 SV travel mm : 0.9
 Tolerance mm ± : 0.6
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 7.8
 Tolerance bar ± : 0.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 5.0

Tolerance bar ± : 0.5
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1100
 Overflow quantity
 ccm/10s : 127.7
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 475
 Overflow quantity
 ccm/10s : 105.5
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 16.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1180
 Del. quantity
 cm³/1000 strokes : 33.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000s. ± : 8.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 54.0
 Tolerance
 cm³/1000 str. ± : 8.0
 Check tolerance
 cm³/1000s. ± : 8.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1240
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 12

Aneroid pressure
hPa :

LDA/
HBA stroke mm : 5.0

Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 53.5
Tolerance
cm³/1000 str. +- : 4.5
Check tolerance
cm³/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 460
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 440
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.0
Dimension K mm : 3,7
Tolerance mm +- : 0,1
Dimension KF mm : 6,4
Tolerance mm +- : 0,2
Dimension MS mm : 1,4
Tolerance mm +- : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 37,7..44,3

End of test-specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Part no. : 0 460 426 263
Pump designation : VE6/12F1100R729-1

Customer-spec. information
Customer : NH
Motor : EPO40B-M100
Power KW : 81.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

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Plunger stroke mm : 1,0
Tolerance mm +- : 0,02(0,06)
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 700
Setting mm : 0.8
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 700
Supply pump
pressure bar : 5.7
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 61.5
Del. quantity
cm3/1000 strokes : 68.0
Tolerance
cm3/1000 str. +- : 0.5
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 5.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 str. +- : 0.5
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1180
 Del. quantity
 cm³/1000 strokes : 33.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. + : 25.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 900
 SV travel mm : 1.8
 Tolerance mm + : 0.6
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 900
 Supply pump
 pressure bar : 6.7
 Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 475
 Supply pump
 pressure bar : 4.6
 Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1100
 Overflow quantity
 ccm/10s : 133.3

Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 475
 Overflow quantity
 ccm/10s : 108.3
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 16.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1180
 Del. quantity
 cm³/1000 strokes : 33.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 8.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 50.5
 Tolerance
 cm³/1000 str. + : 8.0
 Check tolerance
 cm³/1000S. + : 8.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1240
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 60.5
 Tolerance
 cm³/1000 str. + : 2.5
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 4.5
Check tolerance
cm³/1000S. ± : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
Dimension BS mm : 1,4
Tolerance mm ± : 0,2

CONTROL LEVER POSITION
SET

Control Lever
position YA mm : 32,8..34,8

Control Lever
position YB mm : 37,7..44,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Part no. : 0 460 426 264
Pump designation : VE6/12F1100R729-2

Customer-spec. information
Customer : NH
Motor : EP040B-M125
Power KW : 96.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C +- : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 110

Opening pressure bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,0
Tolerance mm +- : 0,02(0,06)
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 600
Setting mm : 1.6
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 600
Supply pump pressure bar : 5.5
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 75.0
Del. quantity cm³/1000 strokes : 80.0
Tolerance cm³/1000 str. +- : 0.5
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 5.0
Shutoff solenoid Volt : 12
Shutoff solenoid Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity cm³/1000 strokes : 15.0
Tolerance cm³/1000 str. +- : 0.5
Shutoff solenoid Volt : 12
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000s. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1190
 Del. quantity
 cm³/1000 strokes : 33.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 100.0
 Tolerance
 cm³/1000 str. + : 25.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 750
 SV travel mm : 2.2
 Tolerance mm + : 0.6
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 475
 SV travel mm : 1.1
 Tolerance mm + : 0.6
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 7.8
 Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 475
 Supply pump
 pressure bar : 4.9

Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1100
 Overflow quantity
 ccm/10s : 130.5
 Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 475
 Overflow quantity
 ccm/10s : 108.3
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 16.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1190
 Del. quantity
 cm³/1000 strokes : 33.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000s. + : 8.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. + : 12.0
 Check tolerance
 cm³/1000s. + : 12.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1240
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000s. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 68.5
Tolerance
cm³/1000 str. +- : 4.0
Check tolerance
cm³/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 460

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 440
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm +- : 0,1
Dimension KF mm : 6,4
Tolerance mm +- : 0,2
Dimension MS mm : 1,4
Tolerance mm +- : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 39,7..46,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.97
Test oil : ISO 4113
Part no. : 0 460 426 265
Pump designation : VE6/12F1150R730

Customer-spec. information
Customer : NH
Motor : EP040B-M160
Power KW : 117.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

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Plunger stroke mm : 1,0
Tolerance mm ± : 0,02(0,06)
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Setting mm : 2.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1250
 Pressure hPa : 1500
 Del. quantity
 cm³/1000 strokes : 49.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 110.0
 Tolerance
 cm³/1000 str. ± : 30.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1500
 SV travel mm : 3.9
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 SV travel mm : 1.5

Tolerance mm ± : 0.5
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 7.9
 Tolerance bar ± : 0.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 5.7
 Tolerance bar ± : 0.5
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 130.5
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 16.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500

Del. quantity
cm3/1000 strokes : 49.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 8.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500

Del. quantity
cm3/1000 strokes : 83.0
Tolerance
cm3/1000 str. + : 10.0
Check tolerance
cm3/1000S. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1300
Aneroid pressure
hPa : 1500

Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 650
Aneroid pressure
hPa : 600

LDA/
HBA stroke mm : 4.0
Del. quantity
cm3/1000 strokes : 101.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 88.0
Tolerance
cm3/1000 str. + : 2.5
Check tolerance
cm3/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 str. + : 4.0
Check tolerance
cm3/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 106.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5

Check tolerance
cm³/1000s. ± : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 4.0
Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
Dimension MS mm : 1,3
Tolerance mm ± : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 44,0..50,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.02.97
Test oil : ISO 4113
Part no. : 0 460 414 158
Pump designation : VE4/11F1800L658-1

Customer-spec. information

Customer : VM
Motor : D 704 L 2.8 L
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1150
Setting mm : 1.8
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1150
Supply pump
pressure bar : 6.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 52.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1890
Del. quantity
cm³/1000 strokes : 36.5
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY
 SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1550
 Del. quantity
 cm³/1000 strokes : -11.0
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1550
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1550
 Del. quantity
 cm³/1000 strokes : -2.0
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1550
 SV travel mm : 4.7
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000

SV travel mm : 1.0
 Tolerance mm + : 0.4

Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1550
 Supply pump
 pressure bar : 8.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Supply pump
 pressure bar : 4.6
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1800
 Overflow quantity
 ccm/10s : 177.7
 Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 130.5
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1890
 Del. quantity
 cm³/1000 strokes : 36.5
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1910
 Del. quantity
 cm³/1000 strokes : 14.0

Check tolerance
cm3/1000S. +- : 7.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1960
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1800
Del. quantity
cm3/1000 strokes : 47.0
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 32.5
Tolerance
cm3/1000 str. +- : 3.5
Check tolerance
cm3/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1600
Del. quantity
cm3/1000 strokes : 48.0
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150
Del. quantity
cm3/1000 strokes : 52.5
Tolerance
cm3/1000 str. +- : 0.5

Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1800
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 420
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1550
Del. quantity
cm³/1000 strokes : -18.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1550
Del. quantity
cm³/1000 strokes : -2.0
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1550
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1550
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.4
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

G06

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : 0,1
Dimension KF mm : 8,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,7
Tolerance mm ± : 0,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.02.97
Test oil : ISO 4113

Part no. : 0 460 414 137
Pump designation : VE4/11F1250L678

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8045.25K.214
Power KW : 69.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 950
Aneroid pressure
hPa : 1000
Setting mm : 2.8
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 950
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 74.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 335
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

Spread
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1340
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 51.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 4.4
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 SV travel mm : 1.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.1
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.5
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 91.6
 Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 350
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 58.3
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1340
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 51.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1395
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 20.0
 Check tolerance cm³/1000s. + : 8.0
 Shutoff solenoid Volt : 12

Rated speed rpm : 1470
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 1.5
 Check tolerance cm³/1000s. + : 1.5
 Shutoff solenoid Volt : 12

Rated speed rpm : 500
 Aneroid pressure hPa : 250
 Del. quantity cm³/1000 strokes : 63.5
 Tolerance cm³/1000 str. + : 0.5
 Check tolerance cm³/1000s. + : 5.0
 Shutoff solenoid Volt : 12

Rated speed rpm : 1250
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 65.0
 Tolerance cm³/1000 str. + : 1.5
 Check tolerance cm³/1000s. + : 3.5
 Shutoff solenoid Volt : 12

Rated speed rpm : 350
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 78.5
 Check tolerance cm³/1000s. + : 3.5
 Shutoff solenoid Volt : 12

Rated speed rpm : 750
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 74.5

Tolerance cm³/1000 str. + : 0.5
 Check tolerance cm³/1000s. + : 3.0
 Shutoff solenoid Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 335
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 1.5
 Tolerance cm³/1000 str. + : 1.5
 Check tolerance cm³/1000s. + : 1.5
 Spread cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 335
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 1.5
 Tolerance cm³/1000 str. + : 1.5
 Spread cm³/1000 strokes : 5.0
 Check tolerance cm³/1000s. + : 1.5
 Spread cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 400
 Del. quantity cm³/1000 strokes : 1.5
 Tolerance cm³/1000 str. + : 1.5
 Check tolerance cm³/1000s. + : 1.5
 Shutoff solenoid Volt : 12

Rated speed rpm : 275
 Del. quantity cm³/1000 strokes : 24.0
 Tolerance cm³/1000 str. + : 3.0
 Check tolerance cm³/1000s. + : 5.0

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. ± : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
Dimension MS mm : 1,1
Tolerance mm ± : 0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.03.97
Test oil : ISO 4113

Part no. : 0 460 424 160
Pump designation : VE4/12F1050R378-11

Customer-spec. information
Customer : CUMMINS
Motor : 4 BT 3.9 L.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,8
Outlet : A

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Setting mm : 2.0
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Supply pump
pressure bar : 5.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 59.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 103.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
 SV travel mm : 2.8
 Tolerance mm ± : 0.6
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 SV travel mm : 1.1
 Tolerance mm ± : 0.6
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
 Supply pump
 pressure bar : 6.2
 Tolerance bar ± : 0.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 400
 Supply pump
 pressure bar : 2.4
 Tolerance bar ± : 0.5

Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1050
 Overflow quantity
 ccm/10s : 72.2
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 400
 Overflow quantity
 ccm/10s : 50.0
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 16.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 59.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 19.5
 Check tolerance
 cm³/1000S. ± : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1190
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1050
 Del. quantity
 cm³/1000 strokes : 70.8

Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 78.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 72.9
Tolerance
cm³/1000 str. + : 4.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 str. + : 6.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250

Del. quantity
cm³/1000 strokes : 71.5
Tolerance
cm³/1000 str. ± : 8.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 160
Del. quantity
cm³/1000 strokes : 117.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm ± : 0,2
Dimension MS mm : 1,1
Tolerance mm ± : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 39,5..45,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.03.97
Test oil : ISO 4113
Part no. : 0 460 484 070
Pump designation : VE4/8F2300R425-6

Customer-spec. information
Customer : PSA
Motor : XUD9AY/L3 Cit.ZX

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,3
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 30.2
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 9.5
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 47.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 7.6
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
SV travel mm : 0.8
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 3.6
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000s. + : 4.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 2500
 Del. quantity
 cm³/1000 strokes : 22.5
 Tolerance
 cm³/1000 str. +- : 3.0
 Check tolerance
 cm³/1000S. +- : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2900
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 33.0
 Tolerance
 cm³/1000 str. +- : 1.0
 Check tolerance
 cm³/1000S. +- : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 31.3
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 30.2
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 2.2
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 24.5
 Tolerance
 cm³/1000 str. +- : 3.0
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 5.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm +- : 0.1
 Check
 tolerance mm +- : 0.3
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm ± : 0.1
Check
tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 21.4
Tolerance
cm³/1000 str. ± : 1.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 225
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. ± : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,0

Tolerance mm ± : 0,2
Dimension MS mm : 1,4
Tolerance mm ± : 0,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.03.97
Test oil : ISO 4113
Part no. : 0 460 484 093
Pump designation : VE4/8F2300R425-9

Customer-spec. information

Customer : PSA
Motor : XUD9AY-L3 Cit.ZX
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil return temperature °C : 45
Tolerance °C ± : 1
Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,3
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.5
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity cm3/1000 strokes : 30.2
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 2.0
Shutoff solenoid Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 5.0
Tolerance cm3/1000 str. ± : 0.5
Shutoff solenoid Volt : 12

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity cm3/1000 strokes : 13.0
Tolerance cm3/1000 str. ± : 1.0
Spread cm3/1000 strokes : 2.0
Shutoff solenoid Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 9.5
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 47.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 7.6
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
SV travel mm : 0.8
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 3.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000s. ± : 4.0

Shutoff solenoid
 Volt : 12

 Rated speed rpm : 2500
 Del. quantity
 cm³/1000 strokes : 22.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 5.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 2900
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 33.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Check tolerance
 cm³/1000S. ± : 2.2
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 31.3
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 30.2
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 2.2
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 24.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 5.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm ± : 0.1
 Check
 tolerance mm ± : 0.3
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm ± : 0.1
Check
tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 21.4
Tolerance
cm³/1000 str. ± : 1.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 225
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. ± : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,0

Tolerance mm ± : 0,2
Dimension MS mm : 1,4
Tolerance mm ± : 0,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.95
Test oil : ISO 4113
Part no. : 0 460 416 077
Pump designation : VE6/11F1300L583

Customer-spec. information

Customer : VM
Motor : D706 LT

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 110

Opening pressure bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200
Aneroid pressure hPa : 1200

Setting mm : 2.6
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Aneroid pressure hPa : 1200
Supply pump pressure bar : 7.9
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1200
Del. quantity cm³/1000 strokes : 65.0
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 43.0
Tolerance cm³/1000 str. +- : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 325
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 str. +- : 2.0
Shutoff solenoid Volt : 12
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1450
 Pressure hPa : 1200
 Del. quantity
 cm³/1000 strokes : 38.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY
 SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1200
 Del. quantity
 cm³/1000 strokes : -12.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1200
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1200
 Del. quantity
 cm³/1000 strokes : -1.0
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1200
 SV travel mm : 3.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1200
 SV travel mm : 1.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 8.3
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 5.5
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1200
 Overflow quantity
 ccm/10s : 138.8
 Tolerance
 ccm/10s ± : 41.6
 Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1200
 Overflow quantity
 ccm/10s : 125.0
 Tolerance
 ccm/10s + : 22.2

 Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1450
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 38.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1500
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 20.0
 Check tolerance
 cm³/1000S. + : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1600
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Aneroid pressure
 hPa : 550
 Del. quantity
 cm³/1000 strokes : 61.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 64.5
 Tolerance
 cm³/1000 str. + : 3.5
 Check tolerance
 cm³/1000S. + : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 73.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : -18.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. +- : 0.1
Check tolerance
cm³/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1200

Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.4
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 560
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : 0,1
Dimension KF mm : 6,4
Tolerance mm +- : 0,2
MS1 dimension mm : 1,15
Tolerance mm +- : 0,15

CONTROL LEVER POSITION SET

Control lever
position YA mm : 38,6..40,6

Control lever
position YB mm : 60,6..71,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.04.97
Test oil : ISO 4113
Part no. : 0 460 426 241
Pump designation : VE6/12F1250R556-1

Customer-spec. information
Customer : PERKINS
Motor : Q20 Phaser 195Ti
Power KW : 150.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,25
Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Setting mm : 1.8
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 7.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 24
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 280

Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 6.5
 Check tolerance
 cm³/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400
 Pressure hPa : 1500
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 160.0
 Tolerance
 cm³/1000 str. ± : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1500
 SV travel mm : 2.7
 Tolerance mm ± : 0.3
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 800
 Aneroid pressure
 hPa : 1500
 SV travel mm : 0.8
 Tolerance mm ± : 0.3

Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 SV travel mm : 3.3
 Tolerance mm ± : 0.4
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 8.5
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 6.4
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 16.6
 Check tolerance
 ccm/10s ± : 16.6
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 86.1
 Tolerance
 ccm/10s ± : 27.7
 Check tolerance
 ccm/10s ± : 27.7
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 75.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Check tolerance
 cm³/1000S. ± : 15.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1480
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 81.5
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 91.5
 Tolerance
 cm³/1000 str. ± : 2.5
 Check tolerance
 cm³/1000S. ± : 3.5

Shutoff solenoid
 Volt : 24
 Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 90.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 3.5
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 280
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 280
 Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm +- : 0,1
Dimension KF mm : 6,4
Tolerance mm +- : 0,2
MS1 dimension mm : 1,35
Tolerance mm +- : 0,15

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2
Control lever
position YB mm : 44,9..53,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.97
Test oil : ISO 4113
Part no. : 0 460 416 049
Pump designation : VE6/11F1900L218-2

Customer-spec. information
Customer : PENTA
Motor : TMD 41
Power KW : 110.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Overflow
restriction mm : 0.55
Inlet press. bar : 0.35
Tolerance bar ± : 0.05
Test nozzle holde
assembly : 1 688 901 022
Opening pressure
bar : 130
Tolerance bar ± : 3
Test lines : 1 680 750 073
Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Prestroke

H03

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Setting mm : 4.1
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.3
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 75.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000s. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 17.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2050
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 17.5
Tolerance
cm³/1000 str. ± : 0.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. ± : 25.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
SV travel mm : 1.3
Tolerance mm ± : 0.6
Check
tolerance mm ± : 0.7

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000

SV travel mm : 4.9
Tolerance mm ± : 0.6
Check
tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.7
Tolerance bar ± : 0.5

Rated speed rpm : 800

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.3
Tolerance bar ± : 0.5

OVERFLOW QUANTITY

Rated speed rpm : 650
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 16.6

Check tolerance
ccm/10s ± : 16.6

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 80.5
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 17.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.0

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 str. ± : 10.0
Check tolerance
cm³/1000S. ± : 10.0

Rated speed rpm : 2130
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Rated speed rpm : 800

Aneroid pressure
hPa : 260

LDA/
HBA stroke mm : 4.0
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. ± : 2.5
Check tolerance
cm³/1000S. ± : 3.5

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 str. ± : 2.5
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 75.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. ± : 1.5

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. ± : 15.0

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. ± : 25.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 4.0
Dimension KF mm : 5,4
Tolerance mm ± : 0,2
Dimension MS mm : 1,3
Tolerance mm ± : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 56,9..64,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.97
Test oil : ISO 4113
Part no. : 0 460 426 2188
Pump designation : VE6/12F1900L527B

Customer-spec. information

Customer : PENTA
Motor : TAMD 41 L

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 55
Tolerance °C +- : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 110

Opening pressure bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,3
Tolerance mm +- : 0,02
Check tolerance mm +- : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1600
Aneroid pressure hPa : 1000

Setting mm : 3.0
Tolerance mm +- : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1600
Aneroid pressure hPa : 1000
Supply pump pressure bar : 8.3
Tolerance bar +- : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 68.0
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 47.0
Tolerance cm³/1000 str. +- : 0.5
Check tolerance cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 325
Del. quantity cm³/1000 strokes : 23.0
Tolerance cm³/1000 str. +- : 2.0
Spread cm³/1000 strokes : 7.0

Check tolerance
cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2100
Pressure hPa : 1500
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 20.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1800
Aneroid pressure
hPa : 1000
SV travel mm : 4.3
Tolerance mm ± : 0.6
Check
tolerance mm ± : 0.7

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

SV travel mm : 1.0
Tolerance mm ± : 0.6
Check
tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1800
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.9
Tolerance bar ± : 0.5

Rated speed rpm : 800

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.5
Tolerance bar ± : 0.5

OVERFLOW QUANTITY

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 166.6
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 27.7

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000s. ± : 8.0

Rated speed rpm : 2200
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 str. ± : 8.0
Check tolerance
cm³/1000s. ± : 15.0

Rated speed rpm : 2300
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. + : 1.5

Rated speed rpm : 800
Aneroid pressure
hPa : 300

LDA/
HBA stroke mm : 7.3
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.0

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1900
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5

H09

Spread
cm³/1000 strokes : 5.0

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

START TRANSITION

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. + : 10.0

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. + : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.3
Dimension KF mm : 6,6
Tolerance mm + : 0,2
Dimension MS mm : 1,3
Tolerance mm + : 0,2

SVS dimension mm : 2,9

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 48,1..55,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.03.97
Test oil : ISO 4113
Part no. : 0 460 485 034
Pump designation : VE5/8F2100L545-7

Customer-spec. information
Customer : VW
Motor : 2,4l SD
Power KW : 57.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.4
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 36.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 8.0

Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 5.7
Tolerance mm ± : 0.6
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

SV travel mm : 0.7
Tolerance mm ± : 0.6
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 7.5
Tolerance bar ± : 0.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Supply pump
pressure bar : 5.3
Tolerance bar ± : 0.5
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 16.6

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 str. + : 6.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2500
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 31.0
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 33.8
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 490
Del. quantity
cm3/1000 strokes : 7.8
Tolerance
cm3/1000 str. + : 2.5
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -6.5
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. +- : 0.1
Check tolerance
cm³/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. +- : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : 0,1
Dimension KF mm : 5,8
Tolerance mm +- : 0,2
Dimension MS mm : 1,4
Tolerance mm +- : 0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 38,2..39,2

Control lever
position YB mm : 38,5..49,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.04.97
Test oil : ISO 4113

Part no. : 0 460 485 036
Pump designation : VE5/8F2100L750

Customer-spec. information

Customer : VW
Motor : 2,4L SD
Power KW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 688 901 000

Opening pressure bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump pressure bar : 7.4
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity cm3/1000 strokes : 36.9
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 2.0
Shutoff solenoid Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity cm3/1000 strokes : 7.0
Tolerance cm3/1000 str. ± : 0.5
Shutoff solenoid Volt : 12

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity cm3/1000 strokes : 8.0
Tolerance cm3/1000 str. ± : 1.0
Spread cm3/1000 strokes : 2.0
Shutoff solenoid Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 465
Del. quantity cm3/1000 strokes : 8.0

Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 6.3
Tolerance mm + : 0.6
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100

SV travel mm : 1.5
Tolerance mm + : 0.5
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 83.8
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 str. + : 6.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 31.0
Tolerance
cm3/1000 str. + : 1.1
Check tolerance
cm3/1000S. + : 1.1
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 34.7
Tolerance
cm3/1000 str. + : 1.6
Check tolerance
cm3/1000S. + : 1.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

Del. quantity
cm3/1000 strokes : 36.9
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 0.9
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 490
Del. quantity
cm3/1000 strokes : 7.8
Tolerance
cm3/1000 str. + : 1.0

Check tolerance
cm³/1000s. + : 2.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -10.5
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000s. + : 0.2
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar + : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm + : 0.2

Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : 0,1
Dimension KF mm : 5,8
Tolerance mm + : 0,2
Dimension MS mm : 1,4
Tolerance min + : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 60,5..67,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.04.97
Test oil : ISO 4113

Part no. : 0 460 485 037
Pump designation : VE5/8F2100L752

Customer-spec. information

Customer : VW
Motor : 2,4l SD f. T4
Power KW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 000

Opening pressure bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump pressure bar : 7.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 36.9
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 8.0

Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 6.3
Tolerance mm ± : 0.6
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100

SV travel mm : 1.6
Tolerance mm ± : 0.5
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 88.8
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 16.6

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. +- : 6.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 str. +- : 1.1
Check tolerance
cm³/1000S. +- : 1.1
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 34.7
Tolerance
cm³/1000 str. +- : 1.6
Check tolerance
cm³/1000S. +- : 1.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 36.9
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 0.9
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 490
Del. quantity
cm³/1000 strokes : 7.8
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -10.5
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.2
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar ± : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm ± : 0.2
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. ± : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : 0,1
Dimension KF mm : 5,8
Tolerance mm ± : 0,2
Dimension MS mm : 1,4
Tolerance mm ± : 0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,0..39,0
Control lever
position YB mm : 38,5..49,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.04.97
Test oil : ISO 4113

Part no. : 0 460 426 271
Pump designation : VE6/12F1100R387-2

Customer-spec. information
Customer : CUMMINS
Motor : 6 BT 133/2100

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,6
Tolerance mm ± : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting mm : 1.2
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 7.5
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 69.0
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000s. : 4.5
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 58.5
Tolerance cm³/1000 str. ± : 0.5

Spread
 cm³/1000 strokes : 9.0
 Shutoff solenoid
 Volt : 24
 Check tolerance
 cm³/1000S. : 9.0
 Check tolerance
 cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 340
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1175
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 92.5
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1075
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.1

Tolerance mm + : 0.6
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1075
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.8
 Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.7
 Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 69.4
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 20.8
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 83.3
 Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1175
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 13.0

Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1225
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 400
Del. quantity
cm³/1000 strokes : 67.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 67.4
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 77.0
Tolerance
cm³/1000 str. + : 5.0

Shutoff solenoid
Volt : 24
Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5

Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 2.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 525
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 102.5
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm ± : 0,2
Dimension MS mm : 1,5
Tolerance mm ± : 0,2
SVS dimension mm : 1,8

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,5..38,5

Control lever
position YB mm : 40,9..46,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.03.91
Test oil : ISO 4113
Part no. : 0 460 416 068
Pump designation : VE6/11F1350R417

Customer-spec. information
Customer : MAN
Motor : D 0826 F01/OH
Power KW : 110.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

H27

(as of UT) mm : 0,55
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Setting mm : 4.0
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump
pressure bar : 5.3
Tolerance bar ± : 0.3

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 76.2
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 str. ± : 3.0
Spread
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1410
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. ± : 20.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1350
 SV travel mm : 6.5
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 600
 SV travel mm : 2.9
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 1000
 SV travel mm : 4.8
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1350
 Supply pump
 pressure bar : 7.3
 Tolerance bar ± : 0.3

Rated speed rpm : 600
 Supply pump
 pressure bar : 4.5
 Tolerance bar ± : 0.3

Rated speed rpm : 1000
 Supply pump
 pressure bar : 6.1
 Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1350
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 41.6

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1410
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 4.5

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : 7.5
 Check tolerance
 cm³/1000s. ± : 7.5

Rated speed rpm : 1550
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5

Rated speed rpm : 1450
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Check tolerance
 cm³/1000s. ± : 15.0

Rated speed rpm : 1350
 Del. quantity
 cm³/1000 strokes : 76.7
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 3.0

Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 76.2
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000s. ± : 3.5

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 61.5
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 4.0

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 76.2
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 15.0

Rated speed rpm : 350

Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. +- : 30.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,8
Tolerance mm +- : 0,2
MS1 dimension mm : 1,65
Tolerance mm +- : 0,15
SVS dimension mm : 2,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.10.92
Test oil : ISO 4113
Part no. : 0 460 416 069
Pump designation : VE6/11F1350R417-1

Customer-spec. information

Customer : MAN
Motor : D 0826 GF01
Power KW : 110.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 109

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

J02

(as of UT) mm : 0,55
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Setting mm : 4.0
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump pressure bar : 5.3
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity cm³/1000 strokes : 76.2
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 4.0
Shutoff solenoid Volt : 24

IDLE SETTING

Rated speed rpm : 300
Del. quantity cm³/1000 strokes : 10.0
Tolerance cm³/1000 str. ± : 3.0
Shutoff solenoid Volt : 24
Spread cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1410

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1350
SV travel mm : 6.5
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
SV travel mm : 2.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
SV travel mm : 4.8
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1350
Supply pump
pressure bar : 7.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Supply pump
pressure bar : 4.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Supply pump
pressure bar : 6.1
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1350
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 16.6

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1410
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000S. ± : 7.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1550

Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1450
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 str. +- : 15.0
Check tolerance
cm3/1000S. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
Del. quantity
cm3/1000 strokes : 76.7
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 76.2
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 59.5
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 76.2
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,8
Tolerance mm +- : 0,2
MS1 dimension mm : 1,65
Tolerance mm +- : 0,15
SVS dimension mm : 2,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.07.92
Test oil : ISO 4113
Part no. : 0 460 416 070
Pump designation : VE6/11F1350R417-2

Customer-spec. information
Customer : MAN
Motor : D 0826 GF 03
Power KW : 110.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

J06

(as of UT) mm : 0,55
Tolerance mm +- : 0,02
Check
tolerance mm +- : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Setting mm : 2.0
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Supply pump
pressure bar : 5.3
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 76.5
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 4.0
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 str. +- : 3.0
Shutoff solenoid
Volt : 24
Spread
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1410

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
SV travel mm : 2.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
SV travel mm : 1.1
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
SV travel mm : 4.9
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.4
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 600
Supply pump
pressure bar : 3.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
Supply pump
pressure bar : 7.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1350
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 16.6

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1410
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000s. ± : 4.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000s. ± : 7.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1550
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000s. ± : 1.5

Shutoff solenoid
 Volt : 24

Rated speed rpm : 1450
 Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 str. ± : 15.0
 Check tolerance
 cm3/1000S. ± : 15.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1350
 Del. quantity
 cm3/1000 strokes : 76.5
 Tolerance
 cm3/1000 str. ± : 1.5
 Check tolerance
 cm3/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 75.0
 Tolerance
 cm3/1000 str. ± : 2.0
 Check tolerance
 cm3/1000S. ± : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 59.0
 Tolerance
 cm3/1000 str. ± : 3.0
 Check tolerance
 cm3/1000S. ± : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1000
 Del. quantity
 cm3/1000 strokes : 76.5
 Tolerance
 cm3/1000 str. ± : 0.5
 Check tolerance
 cm3/1000S. ± : 2.5
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1350
 Del. quantity
 cm3/1000 strokes : 1.5

Tolerance
 cm3/1000 str. ± : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. ± : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. ± : 1.5
 Check tolerance
 cm3/1000S. ± : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. ± : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. ± : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. ± : 1.5
 Check tolerance
 cm3/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,8
Tolerance mm ± : 0,2
MS1 dimension mm : 1,65
Tolerance mm ± : 0,15
SVS dimension mm : 3,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.09.91
Test oil : ISO 4113
Part no. : 0 460 416 073
Pump designation : VE6/11F1350R417-3

Customer-spec. information
Customer : MAN
Motor : D 0826 F 02
Power KW : 110.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1
Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 109

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,55
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Setting mm : 2.0
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Supply pump pressure bar : 5.3
Tolerance bar ± : 0.3

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity cm³/1000 strokes : 78.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 4.0

IDLE SETTING

Rated speed rpm : 300
Del. quantity cm³/1000 strokes : 10.0
Tolerance cm³/1000 str. ± : 3.0
Spread cm³/1000 strokes : 6.0
Check tolerance cm³/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1410
Del. quantity cm³/1000 strokes : 60.0
Tolerance cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 25.0

Tolerance
 ccm/10s ± : 16.6
 Check tolerance
 ccm/10s ± : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 SV travel mm : 2.9
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 900
 SV travel mm : 1.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 1350
 SV travel mm : 4.9
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.4

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 600
 Supply pump
 pressure bar : 3.3
 Tolerance bar ± : 0.3

Rated speed rpm : 1350
 Supply pump
 pressure bar : 7.3
 Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1350
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 41.6

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8

Rated speed rpm : 1410
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 6.5

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : 7.5
 Check tolerance
 cm³/1000S. ± : 7.5

Rated speed rpm : 1550
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5

Rated speed rpm : 1450
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Check tolerance
 cm³/1000S. ± : 15.0

Rated speed rpm : 1350
 Del. quantity
 cm³/1000 strokes : 78.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 3.0

Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 77.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000S. ± : 3.5

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 61.0
 Tolerance
 cm³/1000 str. ± : 3.0

Check tolerance
cm³/1000S. +- : 4.0
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 78.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 15.0

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. +- : 30.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,8
Tolerance mm +- : 0,2
MS1 dimension mm : 1,65
Tolerance mm +- : 0,15
SVS dimension mm : 3,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.04.97
Test oil : ISO 4113
Part no. : 0 460 416 074
Pump designation : VE6/11F1350R417-4

Customer-spec. information
Customer : MAN
Motor : D 0826 GF 04
Power KW : 108.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 680 01 109

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

J13

(as of UT) mm : 0,55
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1100
Setting mm : 2.2
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100
Supply pump pressure bar : 6.5
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity cm³/1000 strokes : 83.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 4.0
Shutoff solenoid Volt : 24

IDLE SETTING

Rated speed rpm : 300
Del. quantity cm³/1000 strokes : 10.0
Tolerance cm³/1000 str. ± : 3.0
Shutoff solenoid Volt : 24
Spread cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1410

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 24

SET GRADUATED STARTING DELIVERY
CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1200
SV travel mm : 3.2
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
SV travel mm : 1.5
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
SV travel mm : 4.1
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.4
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1350
Supply pump
pressure bar : 7.7
Tolerance bar ± : 0.3

Shutoff solenoid
Volt : 24
Rated speed rpm : 600
Supply pump
pressure bar : 3.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1350
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 16.6

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1410
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000s. ± : 4.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000s. ± : 7.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1550
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1450
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 15.0
Check tolerance
cm³/1000s. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000s. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 83.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000s. + : 2.5
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1350

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. + : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2
MS1 dimension mm : 1,15
Tolerance mm + : 0,15
SVS dimension mm : 0,9

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,4..40,4

Control lever
position YB mm : 40,2..45,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.08.90
Test oil : ISO 4113
Part no. : D 460 404 069
Pump designation : VE4/10F1350R418

Customer-spec. information
Customer : MAN
Motor : D 0824 GF01
Power KW : 75.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1
Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 688 901 109

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,2
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Setting mm : 3.6
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Supply pump pressure bar : 5.5
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity cm3/1000 strokes : 73.6
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 4.0
Shutoff solenoid Volt : 24

IDLE SETTING

Rated speed rpm : 300
Del. quantity cm3/1000 strokes : 10.0
Tolerance cm3/1000 str. ± : 3.0
Shutoff solenoid Volt : 24
Spread cm3/1000 strokes : 6.0
Check tolerance cm3/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1370

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1300
SV travel mm : 7.0
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
SV travel mm : 1.5
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1300
Supply pump
pressure bar : 7.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Supply pump
pressure bar : 3.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1300
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 16.6

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1370
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1480
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000S. ± : 7.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1550
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1430
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. ± : 15.0
Check tolerance
cm³/1000S. ± : 15.0

Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 74.2
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 65.8
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 73.6
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.5
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 90.0

Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,8
Tolerance mm ± : 0,2
MS1 dimension mm : 1,6
Tolerance mm ± : 0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.11.91
Test oil : ISO 4113
Part no. : 0 460 404 072
Pump designation : VE4/10F1350R418-1

Customer-spec. information
Customer : MAN
Motor : D 0824 GF 02
Power kW : 75.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 109

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,55
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Setting mm : 2.9
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Supply pump pressure bar : 5.6
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity cm3/1000 strokes : 79.0
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 4.0
Shutoff solenoid Volt : 24

IDLE SETTING

Rated speed rpm : 300
Del. quantity cm3/1000 strokes : 10.0
Tolerance cm3/1000 str. ± : 3.0
Shutoff solenoid Volt : 24
Spread cm3/1000 strokes : 6.0
Check tolerance cm3/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1420

Del. quantity
 cm³/1000 strokes : 62.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1200
 SV travel mm : 5.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 800
 SV travel mm : 0.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1350
 SV travel mm : 5.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.4
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 600
 Supply pump
 pressure bar : 3.4
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1350
 Supply pump
 pressure bar : 7.8
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1350
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1420
 Del. quantity
 cm³/1000 strokes : 62.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 4.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1530
 Del. quantity
 cm³/1000 strokes : 7.5
 Check tolerance
 cm³/1000s. ± : 7.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1480
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Check tolerance
 cm³/1000s. ± : 15.0

Shutoff solenoid
 Volt : 24

Rated speed rpm : 1350
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000s. + : 3.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 77.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000s. + : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 56.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000s. + : 4.0
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000s. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000s. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000s. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000s. + : 1.5
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 80.0

Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,5
Tolerance mm ± : 0,2
MS1 dimension mm : 1,2
Tolerance mm ± : 0,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.04.97
Test oil : ISO 4113
Part no. : 0 460 426 270
Pump designation : VE6/12F1250R498-9

Customer-spec. information
Customer : CUMMINS
Motor : 6 BTAA 5.9L

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Setting mm : 1.9
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.2
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24
Check tolerance
cm³/1000s. : 5.0
Check tolerance
cm³/1000s. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 14.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 66.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 88.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6
 Tolerance mm + : 0.6
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 850

Aneroid pressure
 hPa : 1000
 SV travel mm : 0.6
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.5
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 500
 SV travel mm : 2.6
 Tolerance mm + : 0.6
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.3
 Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.0
 Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 16.6
 Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 83.3

Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 41.6

Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1380
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 66.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1465
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 28.0
 Check tolerance
 cm³/1000S. + : 10.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1510
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 500
 Del. quantity
 cm³/1000 strokes : 77.1
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 83.9
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 92.6
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 5.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 83.2
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 2.5
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. ± : 3.0

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 111.0
Tolerance
cm³/1000 str. ± : 20.0

Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35
Tolerance mm ± : 0,15
SVS dimension mm : 3,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.97
Test oil : ISO 4113
Part no. : 0 460 404 084
Pump designation : VE4/10F2100R518-1

Customer-spec. information
Customer : IVECO-SOFIM
Motor : 8140.67.2200

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,2
Tolerance mm +- : 0,02
Check
tolerance mm +- : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 5.0
Tolerance mm +- : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 6.7
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 str. +- : 0.5
Spread
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 29.0

Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY
SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -22.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.5
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1800
SV travel mm : 7.1
Tolerance mm ± : 0.5

Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150

SV travel mm : 2.7
Tolerance mm ± : 0.5
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100

SV travel mm : 7.3
Tolerance mm ± : 0.5
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Supply pump
pressure bar : 9.0
Tolerance bar ± : 0.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Supply pump
pressure bar : 3.5
Tolerance bar ± : 0.5
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 86.1
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 58.3
Tolerance
ccm/10s ± : 16.6

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 29.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 44.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 str + : 2.5

Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 43.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 373
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 465
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -23.0
Tolerance
cm3/1000 str. ± : 3.0
Check tolerance
cm3/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -0.5
Tolerance
cm3/1000 str. ± : 0.1
Check tolerance
cm3/1000S. ± : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 1.0
Tolerance
cm3/1000 str. ± : 1.0
Check tolerance
cm3/1000S. ± : 1.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.4
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 70.0

Tolerance
cm3/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,8
Tolerance mm ± : 0,2
Dimension MS mm : 1,8
Tolerance mm ± : 0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 41,8..47,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.04.97
Test oil : ISO 4113

Part no. : 0 460 424 140
Pump designation : VE4/12F1250R695

Customer-spec. information

Customer : PERKINS
Motor : Phaser 135 TI
Power KW : 100.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C +- : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

K05

Plunger stroke mm : 1,0
Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1500
Setting mm : 1.7
Tolerance mm +- : 0.1
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1500
Supply pump pressure bar : 6.4
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1500
Del. quantity cm³/1000 strokes : 91.5
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.0
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 400
Del. quantity cm³/1000 strokes : 59.0
Tolerance cm³/1000 str. +- : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm³/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 365

Del. quantity
 cm³/1000 strokes : 8.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1340
 Pressure hPa : 1500
 Del. quantity
 cm³/1000 strokes : 82.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 SV travel mm : 2.6
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1500

SV travel mm : 0.8
 Tolerance mm + : 0.3

Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500

SV travel mm : 3.3
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 7.5
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 5.1
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 83.3
 Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 16.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1340
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 82.0
 Tolerance
 cm3/1000 str. + : 2.0
 Check tolerance
 cm3/1000S. + : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1425
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 20.0
 Check tolerance
 cm3/1000S. + : 10.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1475
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 600
 Del. quantity
 cm3/1000 strokes : 81.5
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 90.5

Tolerance
 cm3/1000 str. + : 2.5
 Check tolerance
 cm3/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 90.5
 Tolerance
 cm3/1000 str. + : 2.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 100.0
 Tolerance
 cm3/1000 str. + : 2.5
 Check tolerance
 cm3/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 91.5
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 370
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 370
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 290
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. ± : 7.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 315
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 5.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 220
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,75
Tolerance mm ± : 0,15

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 31,5..33,5
Control lever
position YB mm : 53,1..61,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.04.97
Test oil : ISO 4113

Part no. : 0 460 424 148
Pump designation : VE4/12F1800R723

Customer-spec. information

Customer : IVECO-SOFIM
Motor : 8140.43.2639
Power KW : 85.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 55
Tolerance °C ± : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1100
Aneroid pressure hPa : 1200
Setting mm : 2.0
Tolerance mm ± : 0.1
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100
Aneroid pressure hPa : 1200
Supply pump pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1100
Aneroid pressure hPa : 1200
Del. quantity cm³/1000 strokes : 58.0
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 28.0
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 4.5

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 450
Del. quantity cm³/1000 strokes : 5.0
Tolerance cm³/1000 str. ± : 4.0

Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. +- : 2.0
Spread
cm³/1000 strokes : 6.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2000
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. +- : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1100
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : -30.0
Tolerance
cm³/1000 str. +- : 1.0

Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1200
SV travel mm : 4.6
Tolerance mm +- : 0.6
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1800
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 8.0
Tolerance bar +- : 0.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 4.8
Tolerance bar +- : 0.5

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1800
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 166.6
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 133.3
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 23.0
Check tolerance
cm³/1000S. + : 7.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2200
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 2.0

Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 2.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 400

LDA/
HBA stroke mm : 6.5
Del. quantity
cm³/1000 strokes : 47.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1800
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. + : 4.0
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 str. + : 5.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100

Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 3.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 550
 Del. quantity
 cm³/1000 strokes : 3.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

IDLE DELIVERY

Rated speed rpm : 250

Del. quantity
 cm³/1000 strokes : 38.0
 Tolerance
 cm³/1000 str. ± : 8.0
 Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : -32.0
 Tolerance
 cm³/1000 str. ± : 4.0
 Check tolerance
 cm³/1000S. ± : 4.5
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : -1.0
 Tolerance
 cm³/1000 str. ± : 0.1
 Check tolerance
 cm³/1000S. ± : 0.2
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 5.0
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1200
 Tolerance mm ± : 0.4

Check
tolerance mm \pm : 0.4
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 str. \pm : 0.5
Check tolerance
cm³/1000S. \pm : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 str. \pm : 4.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.5
Dimension K mm : 3,6
Tolerance mm \pm : 0,1
Dimension KF mm : 8,4
Tolerance mm \pm : 0,2
SVS dimension mm : 3,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 29,3..33,3

Control lever
position YB mm : 61,1..70,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.97
Test oil : ISO 4113
Part no. : 0 460 416 049H
Pump designation : VE6/11F1250L218-2H

Customer-spec. information
Customer : PENTA
Motor : TMD 41
Power KW : 107.0

TEST BENCH REQUIREMENTS

Calibrating-oil return temperature °C : 45
Overflow restriction mm : 0.55
Inlet press. bar : 0.35
Tolerance bar ± : 0.05
Test nozzle holder assembly : 1 688 901 110
Opening pressure bar : 250
Tolerance bar ± : 3
Test lines : 1 680 750 000
Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200
Aneroid pressure hPa : 1000
Setting mm : 4.1
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.3
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 73.0
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 650
Del. quantity cm³/1000 strokes : 41.0
Tolerance cm³/1000 str. ± : 0.5
Check tolerance cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 250
Del. quantity cm³/1000 strokes : 10.0
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 0.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. +- : 20.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
SV travel mm : 1.3
Tolerance mm +- : 0.6
Check
tolerance mm +- : 0.7

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000

SV travel mm : 4.9
Tolerance mm +- : 0.6
Check
tolerance mm +- : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.3
Tolerance bar +- : 0.5

OVERFLOW QUANTITY

Rated speed rpm : 650
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 16.6

Check tolerance
ccm/10s +- : 16.6

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 80.5
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 4.0

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. +- : 8.0
Check tolerance
cm³/1000S. +- : 8.0

Rated speed rpm : 1750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. +- : 1.5

Rated speed rpm : 900
Aneroid pressure
hPa : 550

LDA/
HBA stroke mm : 6.3
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. +- : 0.5

Check tolerance
cm³/1000S. +- : 3.0

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 65.5
Check tolerance
cm³/1000S. +- : 3.0

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. +- : 15.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.3
Dimension KF mm : 5,4
Tolerance mm +- : 0,2
Dimension MS mm : 1,3
Tolerance mm +- : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2. 38,2

Control lever
position YB mm : 56,9..64,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.97
Test oil : ISO 4113

Part no. : 0 460 485 035
Pump designation : VE5/8F2100L746

Customer-spec. information

Customer : VW
Motor : 2.4L SD
Power KW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 000

Opening pressure bar : 147
Tolerance bar ± : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump pressure bar : 7.4
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity cm³/1000 strokes : 36.9
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 2.0
Shutoff solenoid Volt : 12

IDLE SETTING

Rated speed rpm : 415
Del. quantity cm³/1000 strokes : 8.0
Tolerance cm³/1000 str. ± : 1.0
Shutoff solenoid Volt : 12
Spread cm³/1000 strokes : 2.0
Check tolerance cm³/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity cm³/1000 strokes : 12.0
Tolerance cm³/1000 str. ± : 2.0
Shutoff solenoid Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY
SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 6.3
Tolerance mm ± : 0.6
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12
Rated speed rpm : 1100
SV travel mm : 1.6
Tolerance mm ± : 0.5

Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 88.8
Tolerance
ccm/10s ± : 27.7
Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 16.6
Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12
Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm3/1000 str. + : 6.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 31.0
Tolerance
cm3/1000 str. + : 1.1
Check tolerance
cm3/1000S. + : 1.1
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 34.7
Tolerance
cm3/1000 str. + : 1.6
Check tolerance
cm3/1000S. + : 1.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 36.9
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 0.9
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -10.5
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -1.2
Tolerance
cm3/1000 str. + : 0.1
Check tolerance
cm3/1000S. + : 0.2
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar \pm : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm \pm : 0.2
Check
tolerance mm \pm : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 str. \pm : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : 0,1
Dimension KF mm : 5,8
Tolerance mm \pm : 0,2
Dimension MS mm : 1,4
Tolerance mm \pm : 0,2

CONTROL LEVER POSITION
SET

Control Lever
position YA mm : 37,0..39,0

Control Lever
position YB mm : 38,5..49,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.97
Test oil : ISO 4113
Part no. : 3 281 729
Pump designation : VE6/12F1100R296-1A

Customer-spec. information
Customer : CDC
Motor : 6 BTA-590

TEST BENCH REQUIREMENTS

Calibrating-oil return temperature °C : 45
Overflow restriction mm : 0.55
Inlet press. bar : 0.35
Tolerance bar ± : 0.05
Test nozzle holder assembly : 1 688 901 027
Opening pressure bar : 250
Tolerance bar ± : 3
Test lines : 1 680 750 000
Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking
Plunger stroke mm : 1,85

Tolerance mm ± : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Setting mm : 1.2
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Supply pump pressure bar : 4.4
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 92.0
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000s. : 4.5
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 44.0
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 12

Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1160
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
SV travel mm : 2.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
SV travel mm : 0.5
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 2.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 20.8

Check tolerance
ccm/10s + : 20.8
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1160

Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 64.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1180
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 35.0
Check tolerance
cm3/1000S. +- : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1270
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 550
Del. quantity
cm3/1000 strokes : 77.0
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 76.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 84.0
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 98.0
Tolerance
cm3/1000 str. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 92.0
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 2.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm +- : 0,2
MS1 dimension mm : 1,5
Tolerance mm +- : 0,1
SVS dimension mm : 3,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 45,8..51,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.97
Test oil : ISO 4113

Part no. : 0 460 426 269
Pump designation : VE6/12F1100R373-9

Customer-spec. information
Customer : CUMMINS
Motor : 6 BT 5.9 l.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,85
Tolerance mm ± : 0,02 (0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure
hPa : 1000

Setting mm : 1.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 74.3
Tolerance
cm³/1000 str. ± : 0.5

Spread
 cm³/1000 strokes : 9.0
 Shutoff solenoid
 Volt : 24
 Check tolerance
 cm³/1000S. : 9.0
 Check tolerance
 cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 13.5
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1180
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 77.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 128.0
 Tolerance
 cm³/1000 str. ± : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6

Tolerance mm ± : 0.6
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 SV travel mm : 0.9
 Tolerance mm ± : 0.6
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.7
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 69.4
 Tolerance
 ccm/10s ± : 16.6
 Check tolerance
 ccm/10s ± : 20.8
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 83.3
 Tolerance
 ccm/10s ± : 27.7
 Check tolerance
 ccm/10s ± : 41.6

Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1180
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 77.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1240
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 20.0
Check tolerance
cm³/1000S. + : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1280
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 400
Del. quantity
cm³/1000 strokes : 83.8
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 78.1
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0

Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 str. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 88.1
Tolerance
cm³/1000 str. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 590
 Del. quantity
 cm³/1000 strokes : 2.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000S. ± : 2.0
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 460
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. ± : 10.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 320
 Del. quantity
 cm³/1000 strokes : 120.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
 Tolerance mm ± : 0,2
 Dimension MS mm : 1,2
 Tolerance mm ± : 0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Part no. : 3 916 914
Pump designation : VE6/12F1400R387A

Customer-spec. information
Customer : CDC
Motor : 6 BT-5.9 AUTO

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C +- : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,1
Tolerance mm +- : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm +- : 0,02
Check tolerance mm +- : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Setting mm : 4.4
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Supply pump pressure bar : 4.4
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 67.5
Tolerance cm3/1000 str. +- : 0.5
Spread cm3/1000 strokes : 4.0
Check tolerance cm3/1000S. : 4.5
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 31.0
Tolerance cm3/1000 str. +- : 0.5

Shutoff solenoid
Volt : 24
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 360
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1530
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
SV travel mm : 5.9
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7

Shutoff solenoid
Volt : 24
Rated speed rpm : 500
Aneroid pressure
hPa : 1000
SV travel mm : 0.8
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.4
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 2.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 20.8
Check tolerance
ccm/10s + : 20.8

Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1530
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1620
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. ± : 20.0
Check tolerance
cm³/1000S. ± : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 500
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. ± : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 360

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 40,4..45,8

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 2.0
Shutoff solenoid
Volt : 24

End of test-specification sheet

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm +- : 0,2
Dimension MS mm : 1,3
Tolerance mm +- : 0,2
SVS dimension mm : 2,3

CONTROL LEVER POSITION SET

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.05.94
Test oil : ISO 4113
Part no. : 0 460 404 076
Pump designation : VE4/10F1350R418-2

Customer-spec. information
Customer : MAN
Motor : D 0824 GF 03
Power KW : 75.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

L05

(as of UT) mm : 0,2
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Setting mm : 2.4
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1420

Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 24

SET GRADUATED STARTING DELIVERY
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1200
 SV travel mm : 4.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 900
 SV travel mm : 1.4
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1350
 SV travel mm : 6.4
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.4
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
 Supply pump
 pressure bar : 7.7
 Tolerance bar ± : 0.3

Shutoff solenoid
 Volt : 24
 Rated speed rpm : 600
 Supply pump
 pressure bar : 4.7
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1350
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 27.7
 Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 16.6
 Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1420
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000s. ± : 6.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1510
 Del. quantity
 cm³/1000 strokes : 7.5
 Check tolerance
 cm³/1000s. ± : 7.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1550
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1460
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. +- : 15.0
Check tolerance
cm³/1000S. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 77.2
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.5
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1350

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm +- : 0,2
MS1 dimension mm : 1,15
Tolerance mm +- : 0,15

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.05.94
Test oil : ISO 4113
Part no. : 0 460 404 080
Pump designation : VE4/10F1350R418-3

Customer-spec. information
Customer : MAN
Motor : D 0824 FL 01
Power KW : 75.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

L09

(as of UT) mm : 0,2
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Setting mm : 2.4
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 76.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 4.0

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 str. ± : 3.0
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000s. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1420
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. ± : 2.0

SET GRADUATED STARTING DELIVERY
CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. ± : 1.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1200
 SV travel mm : 4.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 900
 SV travel mm : 1.4
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 1350
 SV travel mm : 6.4
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.4

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
 Supply pump
 pressure bar : 7.7
 Tolerance bar ± : 0.3

Rated speed rpm : 600
 Supply pump
 pressure bar : 4.7
 Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1350
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 41.6

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8

Tolerance
 ccm/10s ± : 16.6
 Check tolerance
 ccm/10s ± : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1420
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000S. ± : 6.5

Rated speed rpm : 1510
 Del. quantity
 cm³/1000 strokes : 7.5
 Check tolerance
 cm³/1000S. ± : 7.5

Rated speed rpm : 1550
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5

Rated speed rpm : 1460
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Check tolerance
 cm³/1000S. ± : 15.0

Rated speed rpm : 1350
 Del. quantity
 cm³/1000 strokes : 77.2
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 3.0

Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 79.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000S. ± : 3.5

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 66.0
 Tolerance
 cm³/1000 str. ± : 3.0

Check tolerance
cm³/1000S. +- : 4.0
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

START TRANSITION

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 15.0

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. +- : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm +- : 0,02
MS1 dimension mm : 1,15
Tolerance mm +- : 0,15

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,4..40,4

Control lever
position YB mm : 39,6..44,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.97
Test oil : ISO 4113
Part no. : 3 281 950
Pump designation : VE6/12F1250R498-1A

Customer spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55
Inlet press. bar : 0.35
Tolerance bar ± : 0.05
Test nozzle holde
assembly : 1 688 901 109
Opening pressure
bar : 207
Tolerance bar ± : 3
Test lines : 1 680 750 000
Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,15
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Setting mm : 1.7
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.6
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 6.0
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 str. ± : 2.0

Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. +- : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. +- : 15.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.5
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000

Rated speed rpm : 450
 SV travel mm : 2.5
 Tolerance mm +- : 0.5
 Check
 tolerance mm +- : 0.7

KSB/AFB Volt : 24

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.9

Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar +- : 0.3

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.0
 Tolerance bar +- : 0.3

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.2
 Tolerance bar +- : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Check tolerance
 cm³/1000S. +- : 6.0

Rated speed rpm : 1445
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 30.0
Check tolerance
cm³/1000S. ± : 15.0

Rated speed rpm : 1490
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Rated speed rpm : 600
Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 68.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.0

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 74.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.5

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 str. ± : 5.0

Rated speed rpm : 850
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

START TRANSITION

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 15.0

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. ± : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,55

Tolerance mm \pm : 0,15
SVS dimension mm : 3,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 44,2..49,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113
Part no. : 3 281 949
Pump designation : VE6/12F1250R498-1B

Customer-spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 638 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,15
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

Setting mm : 1.7
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 6.6
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 60.0

Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 6.0
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 str. ± : 2.0

Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. ± : 15.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.5
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000

Rated speed rpm : 450
 SV travel mm : 2.5
 Tolerance mm ± : 0.5
 Check
 tolerance mm ± : 0.7

KSB/AFB Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.9

Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar ± : 0.3

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.0
 Tolerance bar ± : 0.3

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.2
 Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6

Check tolerance
 ccm/10s ± : 41.6

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 6.0

Rated speed rpm : 1445
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 30.0
Check tolerance
cm³/1000S. ± : 15.0

Rated speed rpm : 1490
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Rated speed rpm : 600
Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 68.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.0

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 74.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.5

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 str. ± : 5.0

Rated speed rpm : 850
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

START TRANSITION

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 15.0

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. ± : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,55

Tolerance mm +- : 0,15
SVS dimension mm : 3,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 44,2..49,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113
Part no. : 3 281 948
Pump designation : VE6/12F1250R498-1C

Customer-spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

L20

Plunger stroke mm : 1,15
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Setting mm : 1.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 6.0
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.5
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Aneroid pressure
 hPa : 1000
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 450
 SV travel mm : 2.5
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 SV travel mm : 0.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1445
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 30.0
Check tolerance
cm³/1000S. +- : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1490
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600

Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 68.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 74.0
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 str. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. ± : 20.0

Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,55
Tolerance mm ± : 0,15
SVS dimension mm : 3,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 44,2..49,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.97
Test oil : ISO 4113
Part no. : 3 282 109
Pump designation : VE6/12F1250R498-2C

Customer-spec. information
Customer : CDC
Motor : 6 BTA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1
Overflow restriction mm : 0.55
Inlet press. bar : 0.35
Tolerance bar ± : 0.05
Test nozzle holder assembly : 1 688 901 109
Opening pressure bar : 207
Tolerance bar ± : 3
Test lines : 1 680 750 000
Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,2
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting mm : 2.1
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.6
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 81.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000s. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 67.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000s. : 6.0
Check tolerance cm³/1000s. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 str. ± : 2.0

Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. + : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. + : 15.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000

Rated speed rpm : 450
 SV travel mm : 2.5
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7

KSB/AFB Volt : 24

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.0

Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar + : 0.3

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.0
 Tolerance bar + : 0.3

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.2
 Tolerance bar + : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 22.2

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6

Check tolerance
 ccm/10s + : 41.6

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 6.0

Rated speed rpm : 1425
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 25.0
Check tolerance
cm³/1000S. ± : 15.0

Rated speed rpm : 1480
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Rated speed rpm : 600
Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 73.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.0

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 80.5
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.5

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 5.0

Rated speed rpm : 850
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

START TRANSITION

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. ± : 15.0

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35

Tolerance mm \pm : 0,15
SVS dimension mm : 2,6

CONTROL LEVER POSITION
SET

Control Lever
position YA mm : 34,8..38,8

Control Lever
position YB mm : 43,3..49,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.97
Test oil : ISO 4113
Part no. : 3 282 002
Pump designation : VE6/12F1250R498-2D

Customer-spec. information
Customer : CDC
Motor : 6 BTA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 109

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,2
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting mm : 2.1
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.6
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 81.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000s. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 67.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000s. : 6.0
Check tolerance cm³/1000s. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 str. ± : 2.0

Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 15.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

SV travel mm : 2.6
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

Rated speed rpm : 500
Aneroid pressure
hPa : 1000

Rated speed rpm : 450

SV travel mm : 2.5
Tolerance mm ± : 0.5
Check
tolerance mm ± : 0.7

KSB/AFB Volt : 24

Rated speed rpm : 850
Aneroid pressure
hPa : 1000

SV travel mm : 1.0

Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.5
Tolerance bar ± : 0.3

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.2
Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 6.0

Rated speed rpm : 1425
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 25.0
Check tolerance
cm³/1000S. ± : 15.0

Rated speed rpm : 1480
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Rated speed rpm : 600
Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 73.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.0

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 80.5
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.5

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 5.0

Rated speed rpm : 850
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

START TRANSITION

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. ± : 15.0

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35

Tolerance mm +- : 0,15
SVS dimension mm : 2,6

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,3..48,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.97
Test oil : ISO 4113
Part no. : 3 282 001
Pump designation : VE6/12F1250R498-2E

Customer-spec. information

Customer : CDC
Motor : 6 BTA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 109

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,2
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting mm : 2.1
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.6
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 81.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000s. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 67.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000s. : 6.0
Check tolerance cm³/1000s. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 str. ± : 2.0

Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. ± : 15.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000

Rated speed rpm : 450
 SV travel mm : 2.5
 Tolerance mm ± : 0.5
 Check
 tolerance mm ± : 0.7

KSB/AFB Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.0

Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar ± : 0.3

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.0
 Tolerance bar ± : 0.3

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.2
 Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6

Check tolerance
 ccm/10s ± : 41.6

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 6.0

Rated speed rpm : 1425
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 25.0
Check tolerance
cm³/1000S. + : 15.0

Rated speed rpm : 1480
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

Rated speed rpm : 600
Aneroid pressure
hPa : 450
Del. quantity/
cm³/1000 strokes : 73.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 80.5
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.0

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. + : 5.0

Rated speed rpm : 850
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

START TRANSITION

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. + : 15.0

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. + : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : 6,4
Tolerance mm + : 0,2
MS1 dimension mm : 1,35

Tolerance mm \pm : 0,15
SVS dimension mm : 2,6

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,3..48,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 22.04.97
Test oil : ISO 4113
Part no. : 3 282 000
Pump designation : VE6/12F1250R498-2F

Customer-spec. information
Customer : CDC
Motor : 6 BTA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C +- : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 109

Opening pressure bar : 207
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 5.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,2
Tolerance mm +- : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting mm : 2.1
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.6
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 81.5
Tolerance cm3/1000 str. +- : 0.5
Spread cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 5.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 67.5
Tolerance cm3/1000 str. +- : 0.5
Spread cm3/1000 strokes : 5.0
Shutoff solenoid Volt : 12
Check tolerance cm3/1000S. : 6.0
Check tolerance cm3/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm3/1000 strokes : 13.0
 Tolerance
 cm3/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm3/1000 strokes : 5.5
 Check tolerance
 cm3/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350
 Pressure hPa : 1000
 Del. quantity
 cm3/1000 strokes : 58.0
 Tolerance
 cm3/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm3/1000 strokes : 80.0
 Tolerance
 cm3/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Aneroid pressure
 hPa : 1000
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 450

SV travel mm : 2.5
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.0
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1425
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 25.0
Check tolerance
cm³/1000S. +- : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1480
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600

Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 73.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 80.5
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35
Tolerance mm ± : 0,15
SVS dimension mm : 2,6

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,3..48,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.97
Test oil : ISO 4113
Part no. : 3 282 615
Pump designation : VE6/12F1250R498-3A

Customer-spec. information
Customer : CDC
Motor : 6 BT 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C ± : 1
Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 109

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

M12

Plunger stroke mm : 1,2
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Setting mm : 1.7
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 85.0
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 5.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 61.0
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 5.0
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 6.0
Check tolerance cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 54.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Aneroid pressure
 hPa : 1000
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 450

SV travel mm : 2.5
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 800

Aneroid pressure
 hPa : 1000

SV travel mm : 1.3
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.7
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 8.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1425
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 25.0
Check tolerance
cm³/1000S. + : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1480
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 650

Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 210
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,4
Tolerance mm ± : 0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,6..48,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 18.04.97
Test oil : ISO 4113
Part no. : 3 282 889
Pump designation : VE6/12F125GR498-5A

Customer-spec. information
Customer : CDC
Motor : 6 BT 5.9B
Power KW : 120.0

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
tolerance °C ± : 1
Overflow restriction mm : 0.55
Inlet press. bar : 0.35
Tolerance bar ± : 0.05
Test nozzle holder assembly : 1 688 901 109
Opening pressure bar : 207
Tolerance bar ± : 3
Test lines : 1 680 750 000
Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
Tolerance mm ± : 0,02(0,06)
Outlet : 0

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1100
Aneroid pressure hPa : 1000
Setting mm : 1.8
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.8
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 81.6
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 68.1
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 6.0
Check tolerance cm3/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 345
Del. quantity cm3/1000 strokes : 10.0

Tolerance
 cm³/1000 str. ± : 2.0
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 6.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. ± : 15.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.5
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000

Rated speed rpm : 450

SV travel mm : 2.5
 Tolerance mm ± : 0.5
 Check
 tolerance mm ± : 0.7

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250

Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.3
 Tolerance bar ± : 0.3

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.7
 Tolerance bar ± : 0.3

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.5
 Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 77.7
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1380
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 6.0
 Check tolerance
 cm³/1000S. ± : 8.0

Rated speed rpm : 1465
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 20.0

Check tolerance
cm³/1000S. + : 20.0

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

Rated speed rpm : 600
Aneroid pressure
hPa : 400
Del. quantity
cm³/1000 strokes : 73.9
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.2
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.8
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.6
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 10.0

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. + : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : 6,4
Tolerance mm + : 0,2
MS1 dimension mm : 1,15
Tolerance mm + : 0,15
SVS dimension mm : 3,8

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,9..49,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113
Part no. : 3 281 929
Pump designation : VE6/12F1250R498E

Customer-spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C +- : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 109

Opening pressure bar : 207
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

M20

Plunger stroke mm : 1,4
Tolerance mm +- : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting mm : 1.7
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.6
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 84.5
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 5.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 71.0
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 5.0
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 6.0
Check tolerance cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 8.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 60.5
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.4
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Aneroid pressure
 hPa : 1000
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 450
 SV travel mm : 2.4
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.7
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.6
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.4
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 27.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1380
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 60.5
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1465
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 20.0
Check tolerance
cm³/1000S. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1510
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600

Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 97.0
Tolerance
cm³/1000 str. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 20.0

Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35
Tolerance mm ± : 0,15
SVS dimension mm : 3,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,8..49,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113
Part no. : 3 281 931
Pump designation : VE6/12F1250R498F

Customer-spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 907 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Setting mm : 1.7
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.6
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 6.0
Check tolerance
cm³/1000s. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. ± : 2.0

Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 60.5
 Tolerance
 cm³/1000 str. +- : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. +- : 15.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.4
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000

Rated speed rpm : 450
 SV travel mm : 2.4
 Tolerance mm +- : 0.5
 Check
 tolerance mm +- : 0.7

KSB/AFB Volt : 24

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.7

Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.6
 Tolerance bar +- : 0.3

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.2
 Tolerance bar +- : 0.3

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.4
 Tolerance bar +- : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 77.7
 Tolerance
 ccm/10s +- : 27.7

Check tolerance
 ccm/10s +- : 27.7

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1380
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 60.5
 Tolerance
 cm³/1000 str. +- : 3.0
 Check tolerance
 cm³/1000S. +- : 6.0

Rated speed rpm : 1465
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 20.0
Check tolerance
cm³/1000s. ± : 10.0

Rated speed rpm : 1510
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000s. ± : 1.5

Rated speed rpm : 600
Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000s. ± : 4.0

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000s. ± : 3.0

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 97.0
Tolerance
cm³/1000 str. ± : 5.0

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000s. ± : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000s. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000s. ± : 1.5

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 15.0

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35
Tolerance mm ± : 0,15
SVS dimension mm : 3,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,8..49,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113
Part no. : 3 281 930
Pump designation : VE6/12F1250R498G

Customer-spec. information
Customer : CDC
Motor : 6 BTAA 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil return
temperature °C : 45
Tolerance °C +- : 1
Overflow restriction mm : 0.55
Inlet press. bar : 0.35
Tolerance bar +- : 0.05
Test nozzle holde assembly : 1 688 901 109
Opening pressure bar : 207
Tolerance bar +- : 3
Test lines : 1 680 750 000
Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
Tolerance mm +- : 0,02(0,06)
Outlet : 0

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting mm : 1.7
Tolerance mm +- : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.6
Tolerance bar +- : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 84.5
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 71.0
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 6.0
Check tolerance cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm³/1000 strokes : 8.0
Tolerance cm³/1000 str. +- : 2.0

Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 60.5
 Tolerance
 cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. ± : 15.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.4
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000

Rated speed rpm : 450
 SV travel mm : 2.4
 Tolerance mm ± : 0.5
 Check
 tolerance mm ± : 0.7

KSB/AFB Volt : 12

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.7

Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.6
 Tolerance bar ± : 0.3

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 6.2
 Tolerance bar ± : 0.3

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.4
 Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 77.7
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1380
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 60.5
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 6.0

Rated speed rpm : 1465
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 20.0
Check tolerance
cm³/1000S. ± : 10.0

Rated speed rpm : 1510
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Rated speed rpm : 600
Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.0

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 97.0
Tolerance
cm³/1000 str. ± : 5.0

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 15.0

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : 0,1
Dimension KF mm : 6,4
Tolerance mm ± : 0,2
MS1 dimension mm : 1,35
Tolerance mm ± : 0,15
SVS dimension mm : 3,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,8..49,4

End of test-specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Part no. : 0 460 494 337
Pump designation : VE4/9F2175R504

Customer-spec. information

Customer : PSA
Motor : DJ 5 2.4 l X2/30

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.0
Tolerance mm ± : 0.1
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity cm3/1000 strokes : 42.0
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 2.0
Shutoff solenoid Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 475
Del. quantity cm3/1000 strokes : 3.5
Tolerance cm3/1000 str. ± : 0.5
Shutoff solenoid Volt : 12

IDLE DELIVERY

Rated speed rpm : 375
Del. quantity cm3/1000 strokes : 17.0
Tolerance cm3/1000 str. ± : 1.0
Spread cm3/1000 strokes : 2.0
Shutoff solenoid Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 9.0
Tolerance cm3/1000 str. ± : 1.0

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -14.5
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.3
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
SV travel mm : 7.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 900

SV travel mm : 1.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Supply pump
pressure bar : 7.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Supply pump
pressure bar : 4.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2825
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 41.5
Tolerance
cm³/1000 str. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 42.5

Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2100
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5

Spread
cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -17.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.3
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm + : 0.6

Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : 6,0
Tolerance mm + : 0,2
Dimension MS mm : 1,0
Tolerance mm + : 0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,7..38,7

Control lever
position YB mm : 63,3..74,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113
Part no. : 0 460 414 140
Pump designation : VE4/11F2100R683

Customer-spec. information
Customer : PSA
Motor : DJ5 TED
Power KW : 80.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 55
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

NO8

Plunger stroke mm : 1,08
Tolerance mm ± : 0,02
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Setting mm : 3.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 7.5
Tolerance bar ± : 0.2
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 45.4
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 34.6
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.0

HOUSING-FIXED IDLE SPRING
RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 str. +- : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2250
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 98.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY
SETTING

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1200
SV travel mm : 6.8
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
SV travel mm : 0.7
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 9.2
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 5.5
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
 Overflow quantity
 ccm/10s : 138.8
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 111.1
 Tolerance
 ccm/10s +- : 20.8

Check tolerance
 ccm/10s +- : 20.8
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2250
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 39.0
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000S. +- : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 22.0
 Check tolerance
 cm³/1000S. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2600
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750

Aneroid pressure
 hPa : 500

LDA/
 HBA stroke mm : 6.3
 Del. quantity
 cm³/1000 strokes : 44.2
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 49.5
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 48.6
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 63.5
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 45.4
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 2.5

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 str. + : 3.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE
Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 35.5
Tolerance
cm³/1000 str. + : 0.5
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 34.0

Tolerance
cm³/1000 str. + : 2.0
~~Check tolerance~~
~~cm³/1000S. + : 3.0~~
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Tolerance mm + : 0.3
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Tolerance mm + : 0.1
Check
tolerance mm + : 0.1
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250

Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 430
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 255
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.3
Dimension K mm : 3,3
Tolerance mm +- : 0,1
Dimension KF mm : 8,4
Tolerance mm +- : 0,2
Dimension MS mm : 1,8
Tolerance mm +- : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 18,8..22,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113
Part no. : 0 460 414 156
Pump designation : VE4/11F2100R683-1

Customer-spec. information
Customer : PSA
Motor : DJ5 TED
Power KW : 79.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 55
Tolerance °C + : 1
Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

N13

Plunger stroke mm : 1,08
Outlet : 8

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Setting mm : 3.5
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 7.5
Tolerance bar + : 0.2
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 45.4
Tolerance
cm³/1000 str. + : 0.5
Spread
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 34.6
Tolerance
cm³/1000 str. + : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

IDLE DELIVERY

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 25.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Spread
 cm³/1000 strokes : 2.0
 Shutoff solenoid
 Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2250
 Pressure hPa : 1200
 Del. quantity
 cm³/1000 strokes : 39.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 98.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY
 SETTING

PRESSURE DIFFERENCE

Rated speed rpm : 1500

Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1200
 SV travel mm : 6.8
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1200
 SV travel mm : 0.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 9.2
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1200
 Supply pump
 pressure bar : 5.5
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100

Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s +- : 20.8

Check tolerance
ccm/10s +- : 20.8
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 22.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 500
Del. quantity
cm³/1000 strokes : 44.2
Tolerance
cm³/1000 str. +- : 0.5

Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 48.6
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 63.5
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 45.4
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 400

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 35.5
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Tolerance mm ± : 0.3
Check
tolerance mm ± : 0.4
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Tolerance mm ± : 0.1
Check
tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 31.0

Tolerance
cm³/1000 str. ± : 1.0
Check tolerance
cm³/1000S. ± : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 430
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 255
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : 0,1
Dimension KF mm : 8,4
Tolerance mm ± : 0,2

MICROSWITCH SET

: ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 19,1..23,1

Control lever
position YB mm : 73,0..87,0

End of test-specification sheet